



— BUREAU OF — RECLAMATION

Lower Colorado Basin Stream Flow Records for Calendar Year 2019



Cover:

The tranquil Colorado River amidst the arid desert region of the Picacho State Recreation Area near Yuma, Arizona. The Bureau of Reclamation photograph was taken by Jarrett Peters on November 9, 2018.

Abbreviated Terms and Symbols

The following abbreviated terms and symbols are found in the text, map, tables, and graphs contained within this report.

ac-ft	acre-feet
cfs	cubic-feet per second
°	degrees
E	east
elev	elevation
ft	feet
gh	gage-height
gps	global positioning system
id	identification
max	maximum
mi	mile (miles)
mi ²	square mile (miles)
min	minimum
'	minutes
N	north
NE	northeast
NW	northwest
R	range
S	south
SE	southeast
SW	southwest
T	township
W	west

Table of Contents

Section	Page
Explanation of Records	1
Map of Gaging Stations	4

Lake Gaging Stations

Lake Mohave at Davis Dam	6
Lake Havasu at Parker Dam	8

Colorado River Gaging Stations

Below Big Bend	11
Below Needles Bridge	13
River Section 41	15
Parker Gage	17
Water Wheel	19
Below Interstate Bridge	21
Below McIntyre Park	23
Taylor Ferry	25
Below Oxbow Bridge	27
Cibola Gage	29
Picacho Park	31
Martinez Lake	33

Diversion and Return Gaging Stations

Fort Mojave Tribe Gaging Stations	
Nevada	36
North Casino	38
North Event Center	40
South Casino	42
California 2-North Diversion	44
California 2-West Diversion	46
California 2-South Diversion	48
California 1	50
Cimmaron	52
Willow	54
Barrackman	56
Refuge-Fort Mojave Tribe Diversion	58
Refuge-Vanderslice Farms Diversion	60
United States Fish and Wildlife Service Gaging Stations	
Farm Ditch	62
South Dike	64
Palo Verde Irrigation District Gaging Stations	
Main Canal	66
Outfall Drain	68
Glossary	70

Explanation of Records

The Bureau of Reclamation, Blythe Hydrographic Office is responsible for collecting surface water records along the Lower Colorado River between Hoover Dam and the Southern International Boundary with Mexico. The data in this report does not include all the data collection efforts of the Lower Colorado Region but is limited to the data collection responsibilities of the Operations Support Group of the Boulder Canyon Operations Office.

Data Collection and Computation

The data collected consist of records of stage, velocity, and discharge values and empirical measurements of discharge of streams or canals. Records of stage, velocity-index, and/or discharge-index are obtained from digital dataloggers that measure electronic sensors at programmed time intervals, and calculate mean hourly values. The recorded values are transmitted via telemetry to the Lower Colorado River Hydrologic Database in Boulder City, Nevada and are also downloaded from gaging station field locations by Reclamation hydrologic technicians with a laptop computer. Electronic sensor selection is dependent on the parameters required to measure water level or a component of discharge, and vary by gaging station. Measurements of discharge are made with a mechanical current meter, an acoustic Doppler velocimeter, or an acoustic Doppler current profiler. Measurement techniques comply with standards established by the United States Geological Survey and follow guidelines set forth by the Blythe Hydrographic Office draft quality assurance and quality control plan.

For stream-gaging discharge record stations, discharge rating tables for an appropriate range of stage are prepared from stage-discharge curves. Rating curves are extended to compute discharge values outside of the minimum and maximum measured values by plotting regressions generated from linear, logarithmic, or power equations. Hourly mean discharge values are computed from hourly mean gage-heights applied to rating tables. Monthly and yearly mean discharges are computed from mean daily discharge values. Stage-shifting and velocity-shifting methods are applied to rating curves when continual or temporal physical changes impact the discharge relationship. Dynamic physical conditions may include changes in control or channel geometry caused by migrating sandbars on the channel bottom, seasonal variations in aquatic growth, lack of bank line stability, and side wash ephemeral flows. Shift adjustments may be prorated with time, stage, or time and stage.

The use of velocity-index or discharge-index techniques may be used at gaging stations where stage-discharge relationships are not accurate due to backwater effect caused by downstream ponding in reservoirs, variations in downstream gate configurations, or other situations where no artificial or natural controls are present. The velocity indexing method consists of using an index velocity to calculate an average velocity for the flow in the stream. This average velocity along with a stage-area relationship is used to calculate discharge. Gaging stations that utilize pipe meter devices to measure discharge often require correction through the use of a discharge-index relationship. The discharge indexing method consists of using an index discharge to calculate stream discharge by direct correlation.

For some gaging stations, there are periods when no data are available or data are in error, and cannot be used to compute hourly discharge. This condition occurs when the datalogger or connected sensors malfunction due to failure, drift, or fouling. For such periods, discharge is computed from an estimated independent variable using various techniques including, but not limited to, interpolation, projecting from surrounding data, or a hydrologic relation developed with another stream gage.

Data Presentation

Records published for each continuous-record station consist of three parts: (1) station manuscript; (2) hydrograph; and (3) a summary of the daily mean values for the current year. Times provided reference Mountain Standard Time.

Station Manuscript

The station manuscript provides descriptive information such as station location, period of record, historical extremes, and other remarks pertinent to station operation. The following descriptions detail the type of information included in each section.

Location—Information on the location is obtained from Global Positioning System data referencing the World Geodetic System of 1984, including reference to physical features in the vicinity. Township, range, section, and meridian descriptions are obtained from USGS topographical maps. In a few locations, the grid system is not available on the Fort Mojave Indian Reservation. In these locations, the grid system has been projected to obtain the required information. Descriptions of distance between a gaging station, and a nearby town are provided as a linear distance, not a driving distance. Distances downstream of dams are provided in river miles between the upstream dam, and the gaging station.

Drainage Area—Drainage areas were computed in 2014 using United States Geological Survey Hydrologic Unit Code boundaries. Computed values are reduced by non-contributing areas above the gage. Gaging stations with drainage areas listed as “not applicable” indicate a stream or canal that is not impacted by runoff. Drainage areas listed as “undetermined” indicate a drainage area that has not been outlined and/or measured by Reclamation.

Period of Record—The period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time when the present station was not in operation and the location was such that records from it can reasonably be considered equivalent with records from the present station. Calendar year 2005 was the first year that a final record was published by the Blythe Hydrographic Office. In many cases, the gaging stations mentioned in this publication have been in operation for some time prior to 2005. However, the records have not been finalized or published for any gage prior to 2005.

Gage—A description of the gage used during the reporting year including the gage equipment and the technique used to compute the record.

Extremes—Extreme discharge values are listed as minimum and maximum hourly, and daily mean values for the record period listed in the period of record section.

Remarks—Periods of estimated hourly discharge record will be identified in this paragraph if the method used to estimate the record was non-standard. The paragraph is also used to present information relative to the record that may include details regarding special methods of computation, conditions that affect flow at the station, information on system outages, and other pertinent items.

Hydrograph, Data Table, and Summary Data

The discharge hydrograph displays mean daily discharge in a graphical format. The data table that follows each station manuscript and discharge hydrograph provides mean daily discharge values presented in tabular format. Basic statistical information is provided near the bottom summarizing each month,

including total, mean, maximum, and minimum discharge values in cubic-feet per second for the month and total volume expressed in acre-feet. In addition, annual discharge in cubic-feet per second, and volume in acre-feet are provided for the year along with the annual mean, maximum, and minimum daily discharges. Maximum and minimum hourly discharge values located on the bottom of the table indicate the date, time, stage, and discharge that the hourly extremes occurred during the year.

The stage hydrograph displays mean daily stage values in a graphical format. The data table that follows each manuscript and stage hydrograph provides mean daily stage values presented in tabular format. Basic statistical information is provided near the bottom summarizing each month, including mean, maximum, and minimum values for the month. In addition, annual mean, maximum, and minimum daily values are provided. Maximum and minimum stage values located on the bottom of the table indicate the date, time, and stage that the hourly extremes occurred during the year.

Stage values throughout this report will be referenced as either gage-height or stage, where no vertical datum is used, or as an elevation which references sea level using the National Geodetic Vertical Datum of 1929.

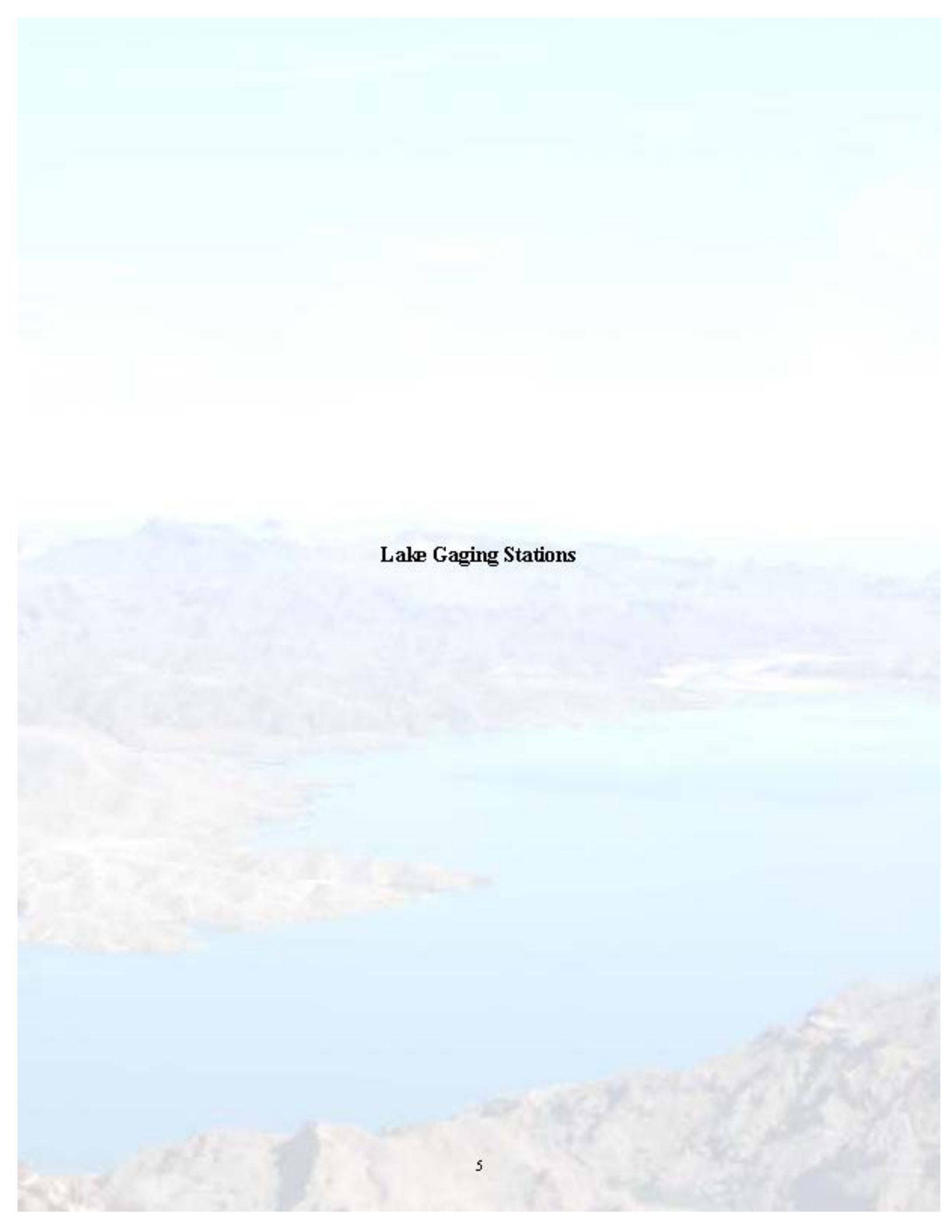
Document Layout

The hydrographs and data tables are grouped by entity and gage type. The report begins with lakes, then Colorado River gaging stations, and concludes with Colorado River diversions and returns. Each grouping is presented geographically beginning with the northern most gage.

Lower Colorado River

Gaging Stations Operated And Reported By The Blythe Hydrographic Office



An aerial photograph of a large, calm reservoir, likely a dammed river. The water is a deep blue, contrasting with the surrounding arid, brownish-yellow hills and mountains. The terrain is rugged with visible ridges and valleys. The sky is a clear, pale blue. The text "Lake Gaging Stations" is centered over the middle of the image.

Lake Gaging Stations

Lake Mohave at Davis Dam

Location—Latitude 35° 11.765', longitude -114° 34.189', in the NW¼ NW¼ of Section 19, T. 21 N., R. 21 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, river mi 275.9, 55.7 mi south of Boulder City, Nevada, 2.0 mi north of Laughlin, Nevada, and 66.3 river mi downstream of Hoover Dam.

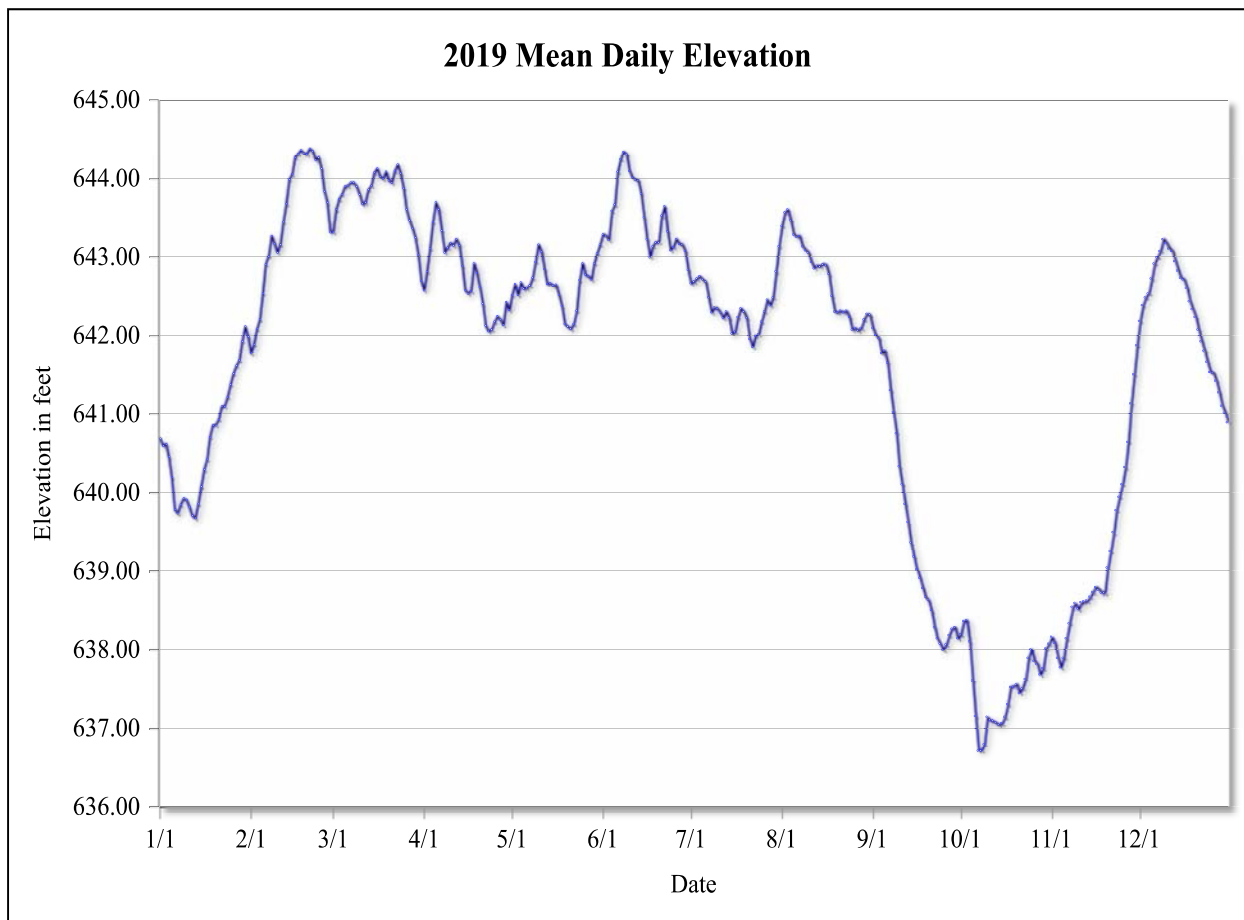
Drainage Area—171,200 mi².

Period of Record—January 1, 2011 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron multiple interface shaft encoder (Model 56-0540-400-DTR).

Extremes—Maximum daily elevation, 645.09 ft, Aug. 3, 2017; minimum daily elevation, 630.74 ft, Nov. 1, 2012; maximum hourly elevation, 645.36 ft, Aug. 4, 2017 at 00:00; minimum hourly elevation, 630.60 ft, Nov. 1, 2012 at 16:00.

Remarks—None.



Lake Mohave at Davis Dam

Mean daily elevation, in feet, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	640.69	641.78	643.32	642.58	642.52	643.29	642.67	643.40	642.10	638.20	638.17	642.19
2	640.60	641.89	643.61	642.82	642.66	643.27	642.69	643.57	642.01	638.37	638.09	642.39
3	640.62	642.09	643.74	643.11	642.52	643.22	642.73	643.61	641.97	638.38	637.90	642.49
4	640.46	642.21	643.80	643.45	642.68	643.59	642.76	643.47	641.78	638.11	637.78	642.54
5	640.20	642.54	643.90	643.70	642.60	643.67	642.72	643.29	641.81	637.61	637.90	642.73
6	639.79	642.91	643.91	643.61	642.61	644.09	642.69	643.26	641.66	637.16	638.15	642.92
7	639.74	643.01	643.95	643.34	642.64	644.25	642.49	643.27	641.31	636.72	638.34	643.00
8	639.85	643.27	643.95	643.06	642.74	644.34	642.30	643.14	641.03	636.72	638.55	643.08
9	639.93	643.17	643.90	643.12	642.94	644.31	642.36	643.09	640.76	636.80	638.60	643.23
10	639.91	643.06	643.80	643.18	643.16	644.10	642.35	643.06	640.34	637.15	638.53	643.18
11	639.82	643.16	643.68	643.15	643.07	644.02	642.30	642.94	640.11	637.11	638.61	643.11
12	639.71	643.45	643.70	643.23	642.85	643.99	642.23	642.86	639.86	637.10	638.62	643.08
13	639.68	643.68	643.86	643.15	642.66	643.98	642.31	642.89	639.63	637.08	638.63	642.95
14	639.86	643.99	643.91	642.89	642.67	643.81	642.23	642.88	639.37	637.05	638.68	642.83
15	640.08	644.06	644.08	642.58	642.64	643.51	642.03	642.91	639.19	637.07	638.74	642.74
16	640.30	644.27	644.13	642.54	642.65	643.23	642.05	642.90	639.03	637.15	638.80	642.72
17	640.43	644.31	644.03	642.57	642.52	643.00	642.24	642.79	638.92	637.31	638.77	642.61
18	640.71	644.36	644.00	642.92	642.38	643.14	642.35	642.51	638.79	637.53	638.73	642.44
19	640.86	644.32	644.09	642.80	642.15	643.19	642.31	642.31	638.68	637.53	638.73	642.34
20	640.86	644.31	643.98	642.62	642.12	643.19	642.23	642.30	638.64	637.56	639.05	642.24
21	640.93	644.38	643.95	642.41	642.09	643.53	641.96	642.32	638.51	637.45	639.26	642.08
22	641.10	644.35	644.10	642.13	642.15	643.65	641.86	642.30	638.29	637.51	639.50	641.93
23	641.10	644.24	644.18	642.06	642.32	643.33	642.00	642.32	638.15	637.63	639.78	641.81
24	641.22	644.27	644.07	642.08	642.71	643.09	642.02	642.24	638.08	637.90	639.95	641.67
25	641.38	644.13	643.88	642.18	642.92	643.13	642.18	642.08	638.00	638.01	640.11	641.54
26	641.52	643.84	643.61	642.25	642.78	643.23	642.31	642.10	638.07	637.86	640.33	641.53
27	641.62	643.70	643.47	642.21	642.76	643.17	642.46	642.07	638.19	637.82	640.65	641.43
28	641.69	643.32	643.37	642.14	642.72	643.16	642.39	642.10	638.27	637.69	641.14	641.28
29	641.93		643.25	642.43	642.92	643.08	642.49	642.21	638.29	637.77	641.51	641.11
30	642.12		643.03	642.33	643.05	642.84	642.82	642.28	638.15	638.02	641.88	641.02
31	641.99		642.70		643.16		643.14	642.27		638.08		640.90
Mean	640.67	643.50	643.77	642.76	642.66	643.51	642.38	642.73	639.63	637.53	639.12	642.29
Max	642.12	644.38	644.18	643.70	643.16	644.34	643.14	643.61	642.10	638.38	641.88	643.23
Min	639.68	641.78	642.70	642.06	642.09	642.84	641.86	642.07	638.00	636.72	637.78	640.90

Calendar Year Summary

Annual Mean 641.70 Daily Max 644.38 Daily Min 636.72

Maximum Elevation

Date	Time	Elev
Feb. 22	11:00	644.51

Minimum Elevation

Date	Time	Elev
Oct. 7	19:00	636.50

Lake Havasu at Parker Dam

Location—Latitude 34° 17.784', longitude -114° 08.311', in the NW¼ NW¼ of Section 3, T. 2 N., R. 27 E., San Bernardino meridian, San Bernardino County, California, Hydrologic Unit 15030101, river mi 192.0, 16.6 mi south of Lake Havasu City, Arizona, 13.3 mi north of Parker, Arizona, and 83.9 river mi downstream of Davis Dam.

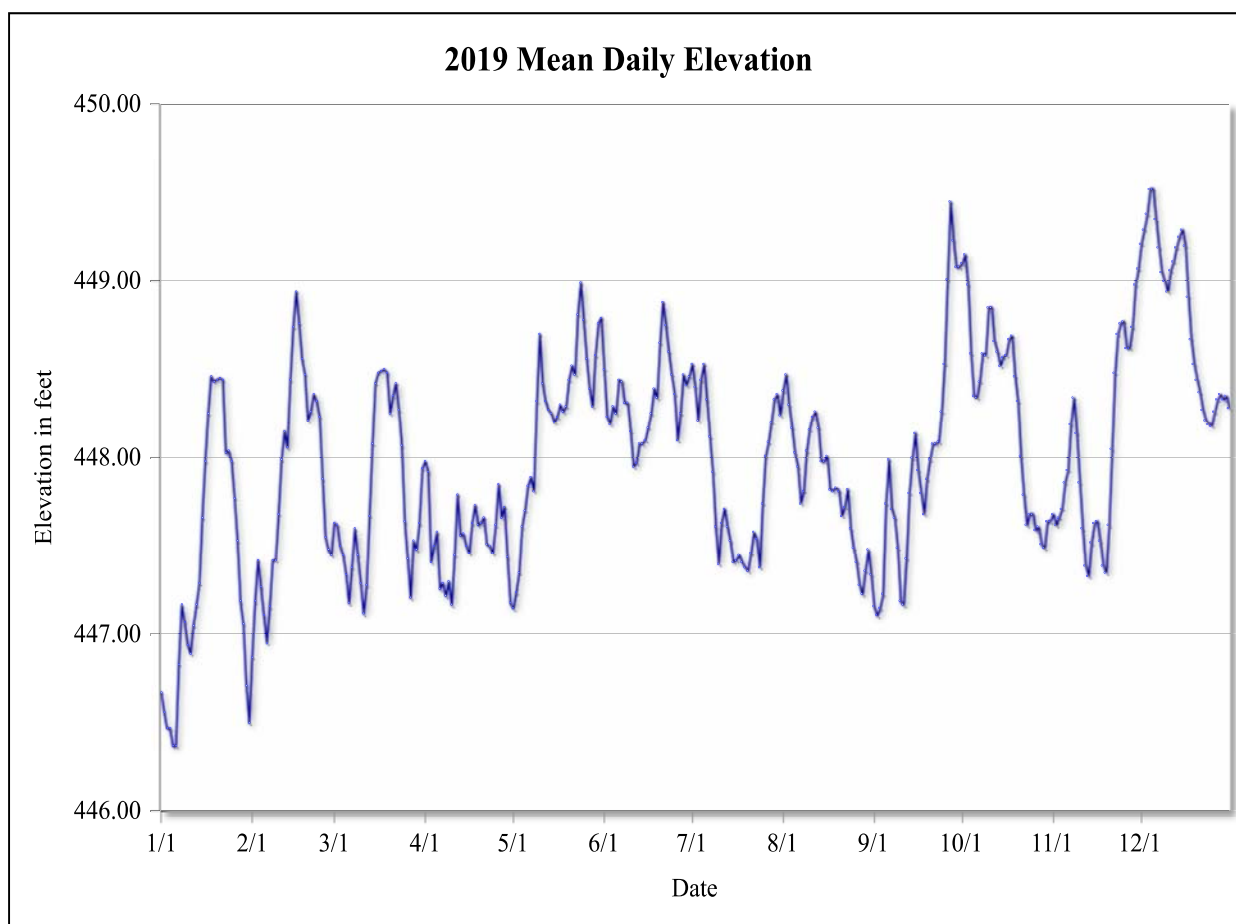
Drainage Area—180,800 mi².

Period of Record—January 1, 2011 to current year.

Gage—A Sutron Xpert datalogger (Model 8080-0000-2B) records water elevation measured with a Sutron stage discharge recorder shaft encoder (Model SDR-0001).

Extremes—Maximum daily elevation, 449.65 ft, Aug. 28, 2013; minimum daily elevation, 444.78 ft, Dec. 19, 2013; maximum hourly elevation, 449.76 ft, Aug. 29, 2013 at 23:00; minimum hourly elevation, 444.69 ft, Dec. 19, 2013 at 10:00.

Remarks—None.



Lake Havasu at Parker Dam

Mean daily elevation, in feet, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	446.67	446.87	447.63	447.98	447.15	448.50	448.53	448.38	447.16	449.10	447.68	449.21
2	446.56	447.19	447.62	447.92	447.24	448.23	448.40	448.47	447.11	449.15	447.62	449.29
3	446.47	447.42	447.50	447.41	447.35	448.19	448.21	448.30	447.15	448.98	447.66	449.38
4	446.47	447.27	447.45	447.50	447.61	448.29	448.44	448.17	447.23	448.59	447.71	449.52
5	446.37	447.11	447.34	447.58	447.70	448.25	448.53	448.03	447.74	448.35	447.86	449.52
6	446.37	446.95	447.18	447.26	447.84	448.44	448.33	447.95	447.99	448.34	447.93	449.35
7	446.83	447.16	447.38	447.29	447.89	448.43	448.12	447.74	447.71	448.43	448.19	449.19
8	447.17	447.42	447.60	447.22	447.81	448.31	447.92	447.81	447.66	448.59	448.34	449.05
9	447.07	447.42	447.45	447.30	448.32	448.31	447.61	448.04	447.49	448.58	448.14	449.00
10	446.94	447.68	447.29	447.17	448.70	448.15	447.40	448.16	447.19	448.85	447.86	448.94
11	446.89	447.99	447.12	447.45	448.42	447.95	447.63	448.23	447.17	448.85	447.60	449.06
12	447.05	448.15	447.28	447.79	448.32	447.97	447.71	448.26	447.43	448.66	447.39	449.11
13	447.17	448.06	447.67	447.56	448.27	448.08	447.61	448.17	447.80	448.60	447.33	449.19
14	447.29	448.44	448.08	447.57	448.25	448.08	447.53	447.98	448.00	448.52	447.52	449.25
15	447.66	448.74	448.42	447.50	448.20	448.10	447.41	447.98	448.14	448.57	447.63	449.29
16	447.98	448.94	448.48	447.46	448.23	448.17	447.42	448.01	447.93	448.58	447.64	449.20
17	448.25	448.76	448.49	447.63	448.30	448.25	447.45	447.82	447.80	448.67	447.53	448.91
18	448.46	448.56	448.50	447.73	448.26	448.39	447.41	447.81	447.68	448.69	447.39	448.67
19	448.43	448.47	448.48	447.62	448.29	448.34	447.38	447.83	447.88	448.46	447.35	448.53
20	448.44	448.21	448.25	447.63	448.44	448.65	447.36	447.81	447.99	448.32	447.62	448.44
21	448.45	448.26	448.35	447.66	448.52	448.88	447.46	447.67	448.08	448.01	448.05	448.37
22	448.44	448.36	448.42	447.51	448.47	448.75	447.58	447.72	448.08	447.79	448.48	448.27
23	448.03	448.32	448.27	447.50	448.81	448.60	447.54	447.82	448.09	447.62	448.70	448.21
24	448.04	448.23	448.07	447.46	448.99	448.47	447.38	447.60	448.26	447.68	448.76	448.19
25	447.98	447.88	447.64	447.62	448.78	448.36	447.74	447.49	448.53	447.68	448.77	448.18
26	447.77	447.55	447.43	447.85	448.56	448.10	448.01	447.41	449.01	447.59	448.62	448.26
27	447.53	447.48	447.21	447.66	448.39	448.25	448.09	447.28	449.45	447.61	448.62	448.33
28	447.19	447.45	447.53	447.72	448.29	448.47	448.20	447.23	449.23	447.51	448.74	448.36
29	447.06		447.48	447.44	448.58	448.41	448.33	447.36	449.08	447.49	448.98	448.33
30	446.71		447.63	447.18	448.76	448.46	448.36	447.48	449.08	447.64	449.07	448.35
31	446.50		447.94		448.79		448.24	447.34		447.64		448.28
Mean	447.36	447.87	447.78	447.54	448.24	448.33	447.85	447.85	447.97	448.30	448.03	448.81
Max	448.46	448.94	448.50	447.98	448.99	448.88	448.53	448.47	449.45	449.15	449.07	449.52
Min	446.37	446.87	447.12	447.17	447.15	447.95	447.36	447.23	447.11	447.49	447.33	448.18

Calendar Year Summary

Annual Mean 448.00 Daily Max 449.52 Daily Min 446.37

Maximum Elevation

Date	Time	Elev
Dec. 4	23:00	449.58

Minimum Elevation

Date	Time	Elev
Jan. 6	00:00	446.18

A photograph of a Colorado River gaging station. The structure consists of a concrete bridge with a metal railing, supported by a large concrete pier on the left and a tall, slender metal tower on the right. The tower has a corrugated metal section near the top and a small platform at the very top. The structure is situated in a river, with the water reflecting the scene. The background shows a rocky, arid landscape with some sparse vegetation and a clear blue sky.

Colorado River Gaging Stations

Colorado River Below Big Bend

Location—Latitude 35° 05.303', longitude -114° 37.458', in the SW¼ NW¼ of Section 10, T. 33 S., R. 66 E., Mount Diablo meridian, Clark County, Nevada, Hydrologic Unit 15030101, river mi 264.7, 2.4 mi southwest of Bullhead City, Arizona, 17.2 mi north of Needles, California, and 11.1 river mi downstream of Davis Dam.

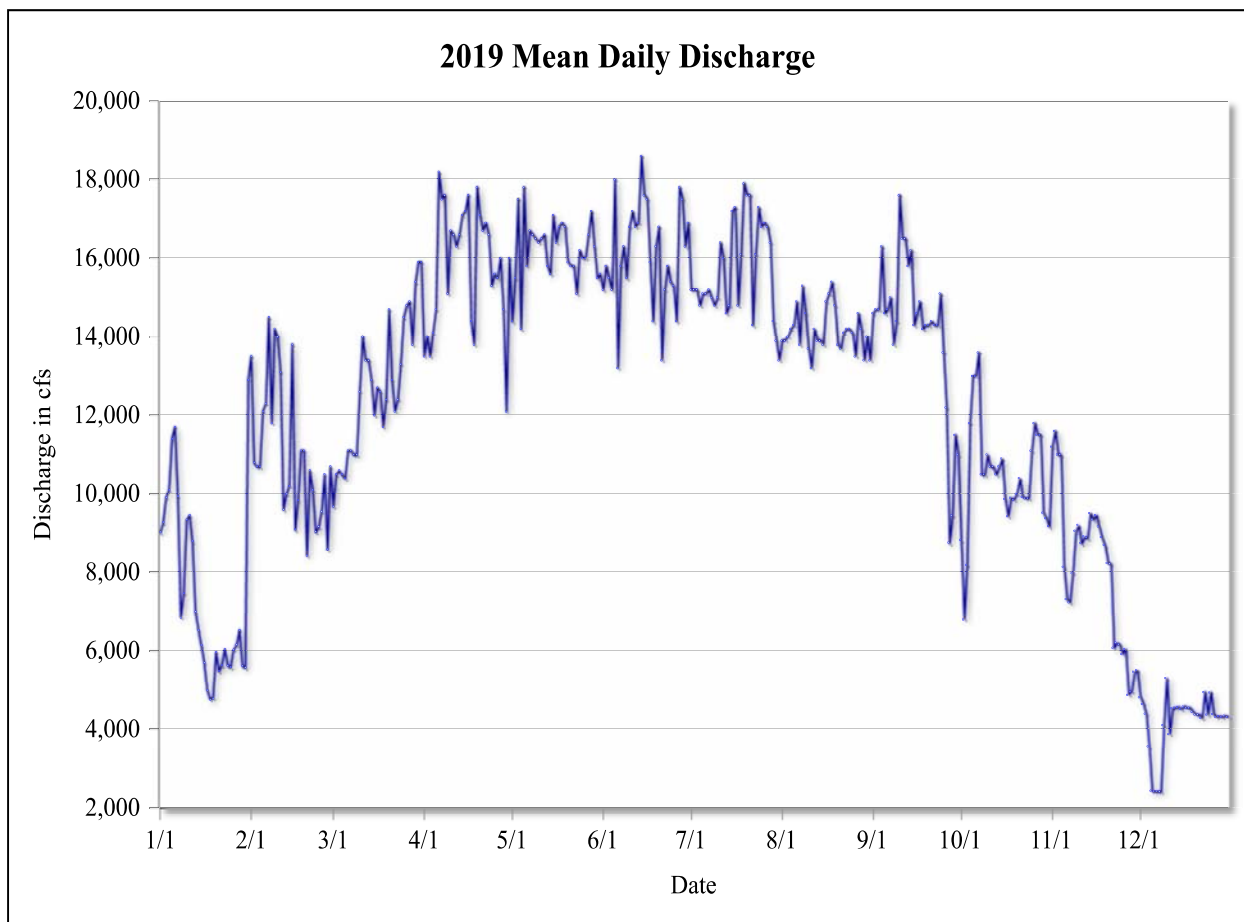
Drainage Area—171,300 mi².

Period of Record—January 1, 2008 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron Accubar constant flow bubbler system (Model 56-0133-25-1). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 25,500 cfs, Mar. 3, 2009; minimum daily discharge, 2,420 cfs, Dec. 8, 2019; maximum hourly discharge, 27,100 cfs, Apr. 1, 2010 at 22:00; minimum hourly discharge, 2,330 cfs, Dec. 07, 2019 at 06:00.

Remarks—None.



Colorado River Below Big Bend

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	9,030	13,500	9,680	13,500	14,400	15,200	15,200	13,900	14,600	8,830	11,200	4,820
2	9,280	10,800	10,500	14,000	15,500	15,800	15,200	13,900	14,700	6,800	11,600	4,650
3	9,910	10,700	10,600	13,500	17,500	15,500	15,200	14,000	14,700	8,190	11,000	4,400
4	10,100	10,700	10,500	14,100	14,200	15,200	14,800	14,200	16,300	11,800	11,000	3,570
5	11,400	12,100	10,400	14,700	17,800	18,000	15,100	14,300	14,600	13,000	8,140	2,440
6	11,700	12,300	11,100	18,200	15,800	13,200	15,100	14,900	14,700	13,000	7,320	2,430
7	9,940	14,500	11,100	17,500	16,700	15,800	15,200	13,800	15,000	13,600	7,240	2,430
8	6,850	11,800	11,000	17,600	16,600	16,300	15,000	15,300	13,800	10,500	7,980	2,420
9	7,470	14,200	11,000	15,100	16,500	15,500	14,800	14,600	14,400	10,500	9,060	4,110
10	9,340	14,000	12,600	16,700	16,400	16,800	15,000	13,700	17,600	11,000	9,210	5,310
11	9,460	13,100	14,000	16,600	16,500	17,200	16,400	13,200	16,500	10,700	8,750	3,880
12	8,800	9,600	13,400	16,300	16,600	16,800	16,000	14,200	16,500	10,700	8,920	4,540
13	7,000	10,000	13,400	16,600	15,800	16,900	14,600	13,900	15,800	10,500	8,890	4,550
14	6,530	10,200	12,900	17,100	15,600	18,600	14,800	13,900	16,200	10,700	9,510	4,570
15	6,150	13,800	12,000	17,200	17,100	17,600	17,200	13,800	14,300	10,900	9,350	4,520
16	5,700	9,100	12,700	17,600	16,400	17,500	17,300	14,900	14,600	9,870	9,460	4,580
17	5,000	9,840	12,600	14,400	16,800	15,900	14,800	15,100	14,900	9,430	9,170	4,550
18	4,760	11,100	11,700	13,800	16,900	14,400	16,100	15,400	14,200	9,900	8,900	4,550
19	4,790	11,100	12,400	17,800	16,800	16,300	17,900	14,800	14,300	9,850	8,700	4,450
20	5,970	8,430	14,700	17,100	15,900	16,800	17,600	13,800	14,300	10,000	8,240	4,380
21	5,490	10,600	12,900	16,700	15,800	13,400	17,600	13,700	14,400	10,400	8,220	4,380
22	5,640	10,100	12,100	16,900	15,800	15,200	14,300	14,100	14,300	9,920	6,080	4,290
23	6,050	9,040	12,400	16,600	15,100	15,800	16,100	14,200	14,300	9,890	6,210	4,950
24	5,630	9,170	13,300	15,300	16,200	15,400	17,300	14,200	15,100	9,890	6,170	4,380
25	5,590	9,550	14,500	15,600	16,000	15,300	16,800	14,100	13,600	11,100	5,920	4,940
26	6,030	10,500	14,800	15,500	16,000	14,400	16,900	13,500	12,200	11,800	6,050	4,390
27	6,160	8,590	14,900	16,000	16,600	17,800	16,800	14,600	8,760	11,500	4,880	4,320
28	6,530	10,700	13,800	14,700	17,200	17,500	16,400	14,200	9,450	11,500	4,960	4,340
29	5,620		15,400	12,100	16,300	16,300	14,400	13,400	11,500	9,520	5,470	4,320
30	5,580		15,900	16,000	15,500	16,900	13,900	14,000	11,000	9,380	5,510	4,350
31	12,900		15,900		15,600		13,400	13,400		9,180		4,320
Total	230,350	309,064	394,207	475,076	501,997	483,276	487,177	439,055	426,432	323,701	243,093	130,086
Mean	7,431	11,040	12,720	15,840	16,190	16,110	15,720	14,160	14,210	10,440	8,103	4,196
Max	12,900	14,500	15,900	18,200	17,800	18,600	17,900	15,400	17,600	13,600	11,600	5,310
Min	4,760	8,430	9,680	12,100	14,200	13,200	13,400	13,200	8,760	6,800	4,880	2,420
Ac-ft	456,892	613,019	781,897	942,300	995,696	958,564	966,301	870,853	845,815	642,052	482,167	258,022

Calendar Year Summary

Annual Total 4,443,512 Annual Mean 12,170 Daily Max 18,600 Daily Min 2,420 Annual Ac-ft 8,813,577

Maximum Discharge

Date	Time	Elev	Discharge
Sep. 10	22:00	489.02	25,744

Minimum Discharge

Date	Time	Elev	Discharge
Dec. 7	06:00	478.84	2,333

Colorado River Below Needles Bridge

Location—Latitude 34° 49.504', longitude -114° 34.870', in the SW¼ SE¼ of Section 33, T. 9 N., R. 23 E., San Bernardino meridian, San Bernardino County, California, Hydrologic Unit 15030101, river mi 243.5, 2.0 mi east of Needles, California, 20.1 mi south of Bullhead City, Arizona, and 32.4 river mi downstream of Davis Dam.

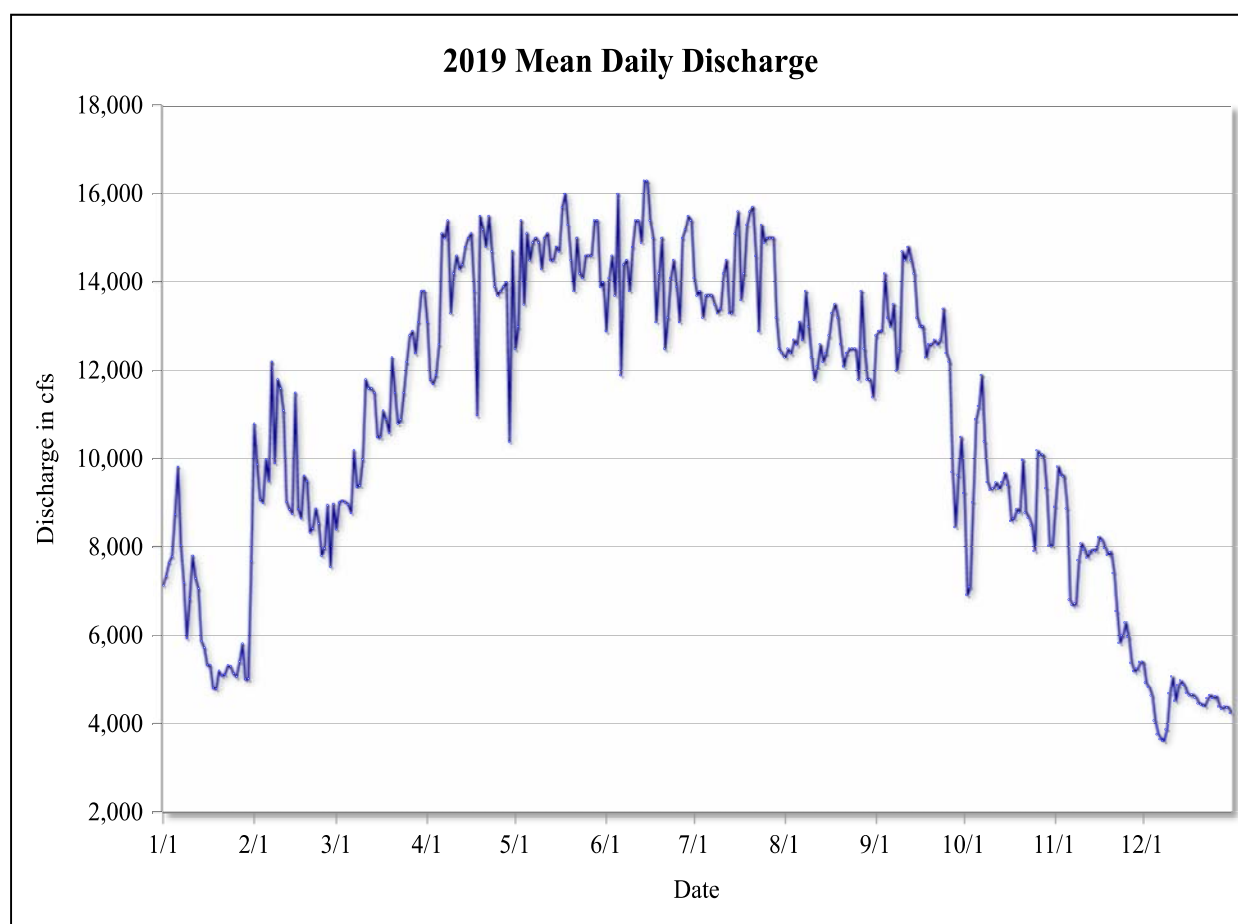
Drainage Area—171,700 mi².

Period of Record—January 1, 2008 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron submersible pressure sensor (Model 6661-1200-5). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 24,100 cfs, Apr. 24, 2009; minimum daily discharge, 3,620 cfs, Dec. 8, 2019; maximum hourly discharge, 24,300 cfs, Apr. 24, 2009 at 10:00; minimum hourly discharge, 3,513 cfs, Dec. 9, 2019 at 08:00.

Remarks—The stage record is estimated good. Discharge record is estimated poor due to the lack of stream stability during the record period. Shifts were not applied to final record and discharge is computed from the base rating.



Colorado River Below Needles Bridge

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	7,140	10,800	8,410	13,100	12,500	12,900	14,100	12,300	12,800	9,230	8,920	5,410
2	7,350	9,880	9,010	11,800	13,000	14,100	13,700	12,500	12,900	6,930	9,830	4,940
3	7,650	9,080	9,050	11,700	15,400	14,600	13,800	12,400	12,900	7,110	9,640	4,840
4	7,790	9,010	9,020	11,900	13,500	13,700	13,200	12,700	14,200	9,020	9,610	4,650
5	8,750	9,990	8,970	12,600	15,100	16,000	13,700	12,600	13,200	10,900	8,880	4,080
6	9,820	9,500	8,780	15,100	14,500	11,900	13,700	13,100	13,000	11,200	6,820	3,770
7	8,050	12,200	10,200	15,000	14,900	14,400	13,700	12,700	13,500	11,900	6,700	3,660
8	7,200	9,910	9,370	15,400	15,000	14,500	13,500	13,800	12,000	10,400	6,730	3,620
9	5,950	11,800	9,400	13,300	14,900	13,800	13,300	13,000	12,500	9,480	7,710	3,880
10	6,830	11,600	9,990	14,200	14,300	14,800	13,400	12,300	14,700	9,300	8,090	4,700
11	7,810	11,100	11,800	14,600	15,000	15,400	14,200	11,800	14,500	9,330	7,940	5,080
12	7,300	9,030	11,600	14,300	15,100	15,400	14,500	12,100	14,800	9,470	7,770	4,530
13	7,070	8,860	11,600	14,400	14,500	14,900	13,300	12,600	14,500	9,320	7,910	4,880
14	5,880	8,760	11,500	14,800	14,500	16,300	13,300	12,200	14,200	9,480	7,940	4,990
15	5,730	11,500	10,500	15,000	14,800	16,300	15,100	12,400	13,200	9,680	7,920	4,890
16	5,340	8,870	10,500	15,100	14,700	15,400	15,600	12,800	13,000	9,410	8,230	4,710
17	5,340	8,660	11,100	13,800	15,700	15,000	13,600	13,300	13,000	8,600	8,160	4,650
18	4,820	9,620	10,900	11,000	16,000	13,100	14,200	13,500	12,300	8,650	7,990	4,670
19	4,800	9,500	10,600	15,500	15,300	14,200	15,300	13,200	12,600	8,860	7,830	4,600
20	5,210	8,340	12,300	15,200	14,500	15,000	15,600	12,600	12,600	8,790	7,890	4,470
21	5,110	8,430	11,500	14,800	13,800	12,500	15,700	12,100	12,700	9,980	7,420	4,450
22	5,130	8,870	10,800	15,500	15,000	13,200	14,600	12,400	12,600	8,790	6,560	4,410
23	5,330	8,540	10,900	14,700	14,200	14,100	12,900	12,500	12,700	8,670	5,840	4,590
24	5,310	7,810	11,500	13,900	14,100	14,500	15,300	12,500	13,400	8,500	6,010	4,660
25	5,150	7,980	12,200	13,700	14,600	13,900	14,900	12,500	12,400	7,920	6,300	4,590
26	5,080	8,950	12,800	13,800	14,600	13,100	15,000	11,800	12,200	10,200	5,980	4,630
27	5,420	7,560	12,900	13,900	14,600	15,000	15,000	13,800	9,710	10,100	5,390	4,400
28	5,820	8,980	12,400	14,000	15,400	15,200	15,000	12,500	8,460	10,100	5,200	4,350
29	5,020		13,100	10,400	15,400	15,500	13,200	11,800	9,630	9,340	5,260	4,400
30	5,030		13,800	14,700	13,900	15,400	12,500	11,800	10,500	8,040	5,410	4,380
31	7,690		13,800		14,000		12,400	11,400		8,020		4,250
Total	195,921	265,202	340,061	417,260	452,803	434,119	437,692	389,050	380,768	286,741	221,881	140,131
Mean	6,320	9,472	10,970	13,910	14,610	14,470	14,120	12,550	12,690	9,250	7,396	4,520
Max	9,820	12,200	13,800	15,500	16,000	16,300	15,700	13,800	14,800	11,900	9,830	5,410
Min	4,800	7,560	8,410	10,400	12,500	11,900	12,400	11,400	8,460	6,930	5,200	3,620
Ac-ft	388,604	526,021	674,501	827,623	898,121	861,063	868,149	771,670	755,243	568,742	440,094	277,945

Calendar Year Summary

Annual Total 3,961,629 Annual Mean 10,850 Daily Max 16,300 Daily Min 3,620 Annual Ac-ft 7,857,776

Maximum Discharge

Date	Time	Elev	Discharge
Jun. 29	03:00	461.08	19,863

Minimum Discharge

Date	Time	Elev	Discharge
Dec. 9	08:00	451.31	3,513

Colorado River at River Section 41

Location—Latitude 34° 41.255', longitude -114° 27.759', in the SW¼ NW¼ of Section 13, T. 15 N., R. 21 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, at river mi 231.0, 13.5 mi south of Needles, California, 16.2 mi north of Lake Havasu City, Arizona, and 44.9 river mi downstream of Davis Dam.

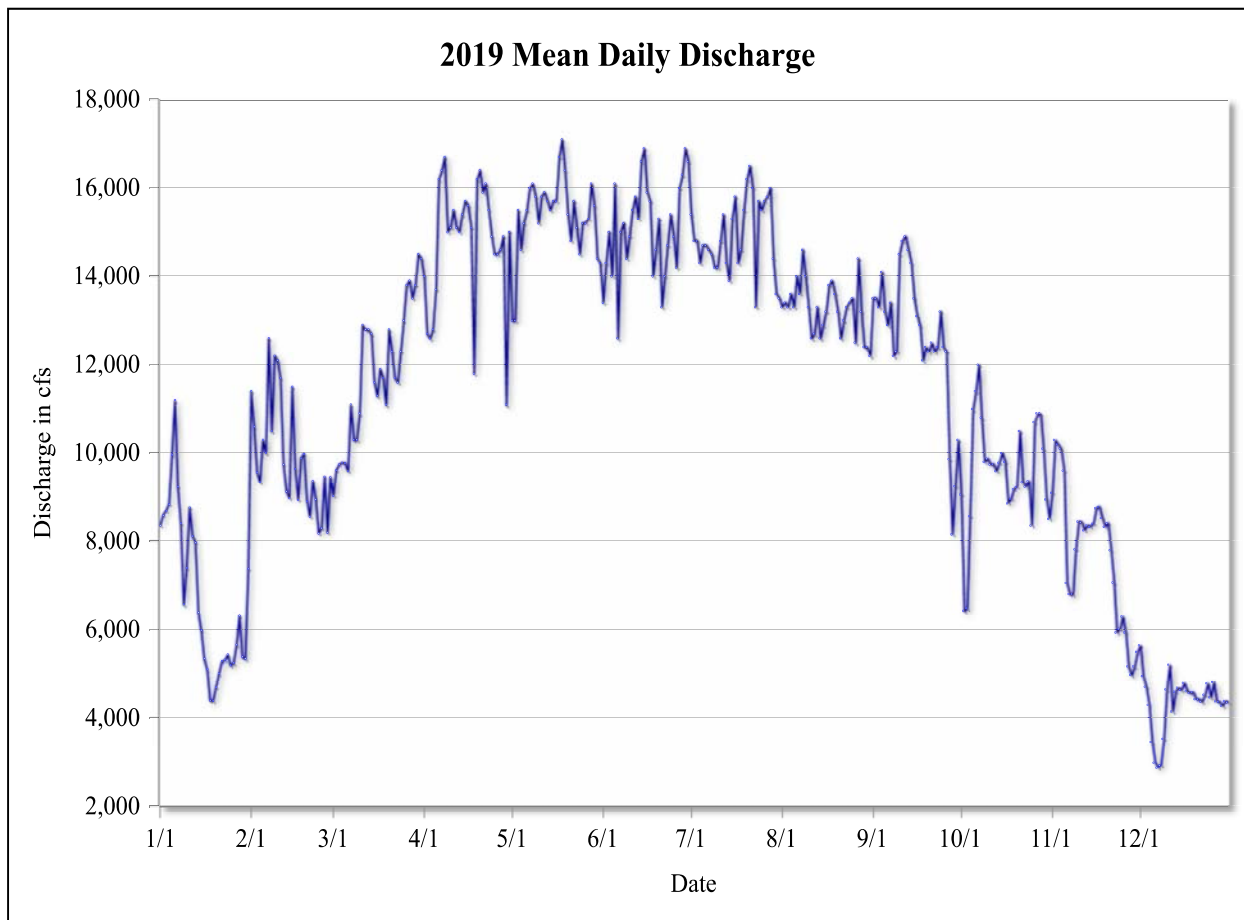
Drainage Area—174,300 mi².

Period of Record—June 29, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation and velocity measured with a SonTek/YSI Argonaut-SL current meter. Discharge is calculated using a velocity-index relationship.

Extremes—Maximum daily discharge, 23,300 cfs, Apr. 24, 2009; minimum daily discharge, 2,880 cfs, Dec. 7, 2019; maximum hourly discharge, 23,610 cfs, Apr. 24, 2009 at 12:00; minimum hourly discharge, 2,745 cfs, Dec. 9, 2019 at 03:00.

Remarks—The discharge record was estimated from Nov. 29, 2019 at 04:00 to Nov. 29, 2019 at 15:00 due to equipment failure.



Colorado River at River Section 41

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	8,360	11,400	9,030	14,000	13,000	13,400	15,400	13,300	13,500	9,060	9,100	5,650
2	8,590	10,600	9,610	12,700	13,000	14,300	14,800	13,400	13,500	6,430	10,300	4,950
3	8,690	9,560	9,740	12,600	15,500	15,000	14,800	13,300	13,300	6,490	10,200	4,710
4	8,840	9,340	9,780	12,800	14,600	14,000	14,300	13,600	14,100	8,570	10,100	4,300
5	9,960	10,300	9,770	13,700	15,200	16,100	14,700	13,300	13,200	11,000	9,600	3,460
6	11,200	10,000	9,590	16,200	15,500	12,600	14,700	14,000	12,900	11,400	7,060	2,990
7	9,240	12,600	11,100	16,400	16,000	15,000	14,600	13,600	13,400	12,000	6,810	2,880
8	8,410	10,500	10,300	16,700	16,100	15,200	14,500	14,600	12,200	10,800	6,810	2,930
9	6,580	12,200	10,300	15,000	15,800	14,400	14,200	14,000	12,300	9,800	7,820	3,530
10	7,400	12,100	10,900	15,100	15,200	14,900	14,200	13,300	14,500	9,870	8,450	4,650
11	8,760	11,700	12,900	15,500	15,800	15,500	14,800	12,600	14,800	9,740	8,430	5,210
12	8,120	9,740	12,800	15,100	15,900	15,800	15,400	12,700	14,900	9,750	8,250	4,150
13	7,970	9,130	12,800	15,000	15,700	15,300	14,300	13,300	14,600	9,590	8,360	4,600
14	6,390	8,980	12,700	15,400	15,500	16,600	13,900	12,600	14,300	9,780	8,330	4,690
15	5,990	11,500	11,600	15,700	15,700	16,900	15,300	12,900	13,500	10,000	8,400	4,640
16	5,350	9,640	11,300	15,600	15,700	15,900	15,800	13,200	13,100	9,800	8,750	4,800
17	5,110	8,940	11,900	15,100	16,700	15,700	14,300	13,800	12,900	8,860	8,780	4,610
18	4,400	9,880	11,700	11,800	17,100	14,000	14,600	13,900	12,100	8,960	8,530	4,570
19	4,390	9,980	11,100	16,200	16,400	14,600	15,500	13,600	12,400	9,180	8,330	4,590
20	4,700	8,910	12,800	16,400	15,400	15,300	16,200	13,200	12,300	9,230	8,410	4,430
21	5,010	8,560	12,300	15,900	14,800	13,300	16,500	12,600	12,500	10,500	7,800	4,430
22	5,290	9,360	11,700	16,100	15,700	14,000	16,000	13,000	12,300	9,340	7,070	4,370
23	5,320	8,950	11,600	15,500	15,100	14,700	13,300	13,300	12,400	9,240	5,940	4,530
24	5,440	8,180	12,300	14,900	14,500	15,400	15,700	13,400	13,200	9,360	6,020	4,790
25	5,200	8,300	13,000	14,500	15,200	14,900	15,500	13,500	12,400	8,360	6,300	4,470
26	5,250	9,460	13,800	14,500	15,200	14,200	15,700	12,500	12,300	10,700	5,940	4,820
27	5,660	8,200	13,900	14,600	15,300	16,000	15,800	14,400	9,860	10,900	5,170	4,380
28	6,320	9,450	13,500	14,900	16,100	16,300	16,000	13,200	8,160	10,900	4,980	4,370
29	5,390		13,800	11,100	15,600	16,900	14,400	12,400	9,250	10,100	5,170	4,280
30	5,350		14,500	15,000	14,400	16,600	13,600	12,400	10,300	8,950	5,500	4,390
31	7,380		14,400		14,300		13,500	12,200		8,510		4,360
Total	210,022	277,447	366,319	444,017	475,956	452,909	462,259	411,162	380,431	297,075	230,703	135,534
Mean	6,775	9,909	11,820	14,800	15,350	15,100	14,910	13,260	12,680	9,583	7,690	4,372
Max	11,200	12,600	14,500	16,700	17,100	16,900	16,500	14,600	14,900	12,000	10,300	5,650
Min	4,390	8,180	9,030	11,100	13,000	12,600	13,300	12,200	8,160	6,430	4,980	2,880
Ac-ft	416,572	550,307	726,584	880,695	944,044	898,332	916,877	815,528	754,575	589,239	457,592	268,827

Calendar Year Summary

Annual Total 4,143,833 Annual Mean 11,350 Daily Max 17,100 Daily Min 2,880 Annual Ac-ft 8,219,172

Maximum Discharge

Date	Time	Elev	Discharge
Jun. 29	04:00	453.99	20,038

Minimum Discharge

Date	Time	Elev	Discharge
Dec. 9	03:00	449.80	2,745

Bold values indicate the daily value was derived from hourly data that contained 6 or more consecutive hours of estimated record.

Colorado River at Parker Gage

Location—Latitude 34° 08.934', longitude -114° 18.468', in the NW¼ SE¼ of Section 2, T. 9 N., R. 20 W., Gila-Salt River meridian, La Paz County, Arizona, Hydrologic Unit 15030104, river mi 175.0, 1.1 mi west of Parker, Arizona, 40.4 mi north of Blythe, California, and 17.0 river mi downstream of Parker Dam.

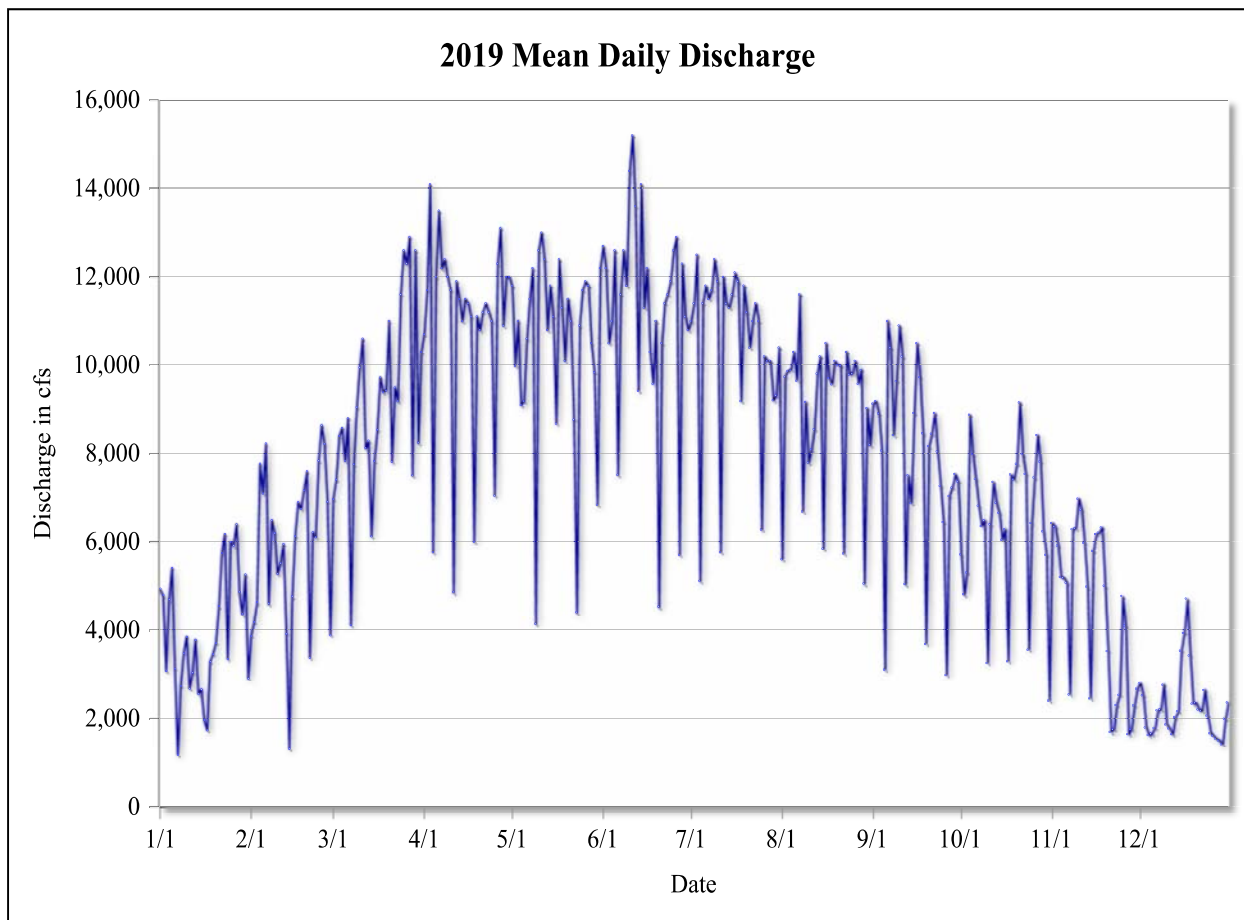
Drainage Area—181,000 mi².

Period of Record—January 1, 2005 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron Accubar constant flow bubbler (Model 56-0133-25-1). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 19,000 cfs, Mar. 25, 2014; minimum daily discharge, 967 cfs, Dec. 22, 2017; maximum hourly discharge, 21,600 cfs, Apr. 16, 2011 at 22:00; minimum hourly discharge, 111 cfs, June 20, 2018 at 07:00.

Remarks—None.



Colorado River at Parker Gage

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	4,940	3,870	6,970	10,700	11,800	12,700	11,000	5,610	9,130	5,720	6,430	2,800
2	4,800	4,190	7,410	11,700	9,980	12,200	11,400	9,740	9,190	4,820	6,350	2,530
3	3,080	4,640	8,400	14,100	11,000	10,500	12,500	9,870	8,910	5,310	5,920	1,800
4	4,700	7,770	8,580	5,770	9,100	11,000	5,120	9,890	8,070	8,880	5,210	1,630
5	5,410	7,100	7,840	12,000	9,190	12,600	11,400	10,300	3,110	7,990	5,190	1,660
6	3,130	8,230	8,800	13,500	10,600	7,520	11,800	9,650	11,000	7,430	5,080	1,790
7	1,180	4,610	4,120	12,200	11,500	11,600	11,500	11,600	10,400	6,820	2,550	2,190
8	2,740	6,490	7,760	12,400	12,200	12,600	11,700	6,690	8,420	6,360	6,290	2,210
9	3,480	6,200	9,050	12,000	4,150	11,800	12,400	9,170	9,640	6,490	6,310	2,770
10	3,850	5,280	9,950	11,700	12,600	14,400	11,900	7,800	10,900	3,260	6,980	1,870
11	2,680	5,520	10,600	4,870	13,000	15,200	5,770	8,100	10,200	6,400	6,730	1,780
12	3,040	5,950	8,130	11,900	12,400	13,600	12,000	8,550	5,050	7,360	5,980	1,650
13	3,780	3,920	8,290	11,500	10,800	9,420	11,400	9,810	7,510	6,890	4,990	2,040
14	2,560	1,320	6,130	11,000	11,800	14,100	11,300	10,200	6,880	6,660	2,460	2,170
15	2,660	4,770	7,830	11,500	11,100	11,300	11,600	5,850	8,920	6,050	5,800	3,540
16	1,970	6,130	8,540	11,400	8,680	12,200	12,100	10,500	10,500	6,290	6,180	3,940
17	1,740	6,900	9,720	11,100	12,400	10,300	11,900	9,710	9,730	3,300	6,210	4,720
18	3,290	6,750	9,390	6,000	11,300	9,580	9,190	9,570	8,460	7,530	6,330	3,430
19	3,460	7,170	9,430	11,100	10,100	11,000	11,800	10,100	3,690	7,420	5,010	2,340
20	3,710	7,600	11,000	10,800	11,500	4,540	11,200	10,000	8,170	7,770	3,530	2,360
21	4,550	3,380	7,820	11,200	11,000	10,500	10,400	9,990	8,450	9,160	1,700	2,210
22	5,750	6,220	9,490	11,400	8,770	11,400	11,000	5,740	8,920	7,990	1,760	2,180
23	6,180	6,110	9,190	11,200	4,410	11,600	11,400	10,300	8,050	7,540	2,310	2,650
24	3,350	7,840	11,600	11,000	10,900	11,900	11,000	9,790	7,270	3,560	2,540	2,070
25	6,000	8,640	12,600	7,050	11,700	12,600	6,280	9,810	6,450	6,430	4,780	1,670
26	5,920	8,220	12,300	12,300	11,900	12,900	10,200	10,100	2,990	7,460	4,110	1,620
27	6,400	6,910	12,900	13,100	11,800	5,710	10,100	9,580	7,040	8,420	1,650	1,550
28	4,870	3,890	7,510	10,900	10,500	12,300	10,100	9,890	7,230	7,820	1,760	1,510
29	4,370		12,600	12,000	9,840	11,100	9,210	5,060	7,540	6,240	2,300	1,420
30	5,260		8,250	12,000	6,840	10,800	9,320	9,030	7,370	5,710	2,680	2,000
31	2,910		10,300		12,200		10,400	8,200		2,410		2,370
Total	121,762	165,587	282,456	329,222	325,145	338,875	328,565	280,136	239,064	201,495	135,090	70,476
Mean	3,928	5,914	9,111	10,970	10,490	11,300	10,600	9,037	7,969	6,500	4,503	2,273
Max	6,400	8,640	12,900	14,100	13,000	15,200	12,500	11,600	11,000	9,160	6,980	4,720
Min	1,180	1,320	4,120	4,870	4,150	4,540	5,120	5,060	2,990	2,410	1,650	1,420
Ac-ft	241,511	328,438	560,244	653,002	644,915	672,148	651,699	555,641	474,176	399,659	267,948	139,788

Calendar Year Summary

Annual Total 2,817,872 Annual Mean 7,720 Daily Max 15,200 Daily Min 1,180 Annual Ac-ft 5,589,168

Maximum Discharge

Date	Time	Elev	Discharge
Jun. 10	21:00	345.80	20,567

Minimum Discharge

Date	Time	Elev	Discharge
Jun. 20	07:00	339.22	111

Colorado River at Water Wheel

Location—Latitude 33° 55.914', longitude -114° 32.108', in the NW¼ SW¼ of Section 22, T. 7 N., R. 22 W., Gila-Salt meridian, La Paz County, Arizona, Hydrologic Unit 15030104, river mi 151.6, 20.7 mi south of Parker, Arizona, 22.3 mi north of Blythe, California, and 40.4 river mi downstream of Parker Dam.

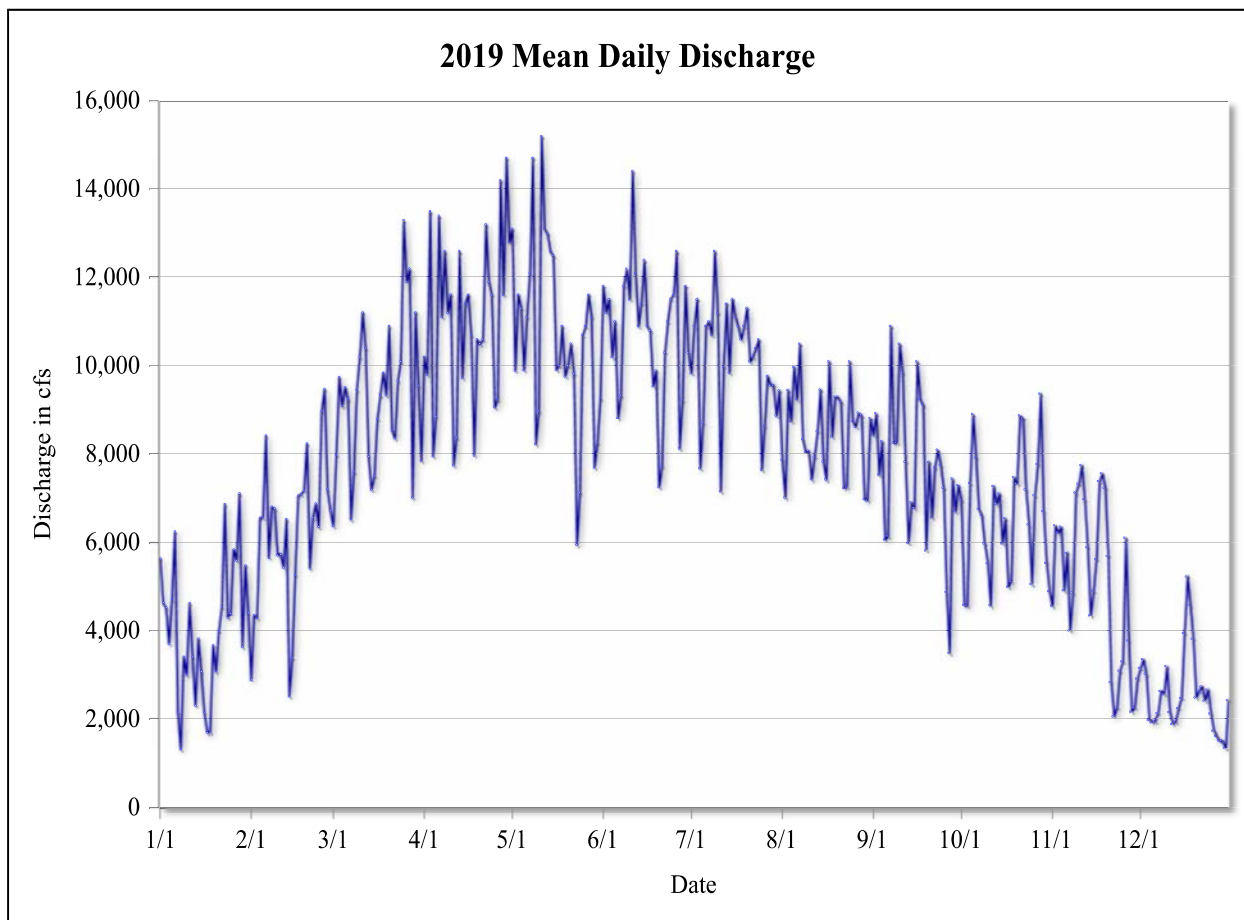
Drainage Area—181,600 mi².

Period of Record—January 1, 2005 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron multiple interface shaft encoder (Model 56-0540-400-DTR). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 19,200 cfs, Mar. 26, 2014; minimum daily discharge, 1,320 cfs, Jan. 8, 2019; maximum hourly discharge, 20,402 cfs, Apr. 22, 2015 at 03:00; minimum hourly discharge, 1,099 cfs, Jan 8, 2016 at 05:00.

Remarks—The stage record is estimated good. Discharge record is estimated poor due to the lack of stream stability during the record period.



Colorado River at Water Wheel

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	5,630	2,900	6,380	10,200	13,100	11,800	9,830	7,870	8,430	6,970	4,570	3,160
2	4,640	4,360	7,980	9,800	9,890	11,200	10,900	7,020	8,930	4,590	6,390	3,360
3	4,530	4,290	9,740	13,500	11,600	11,500	11,500	9,450	7,540	4,580	6,230	3,030
4	3,710	6,560	9,100	7,950	11,300	10,200	7,680	8,750	8,290	7,350	6,360	1,980
5	4,720	6,570	9,510	8,850	9,900	11,000	8,710	9,970	6,070	8,910	4,920	1,930
6	6,250	8,420	9,260	13,400	11,100	8,820	10,900	9,250	6,150	7,920	5,760	1,940
7	2,160	5,650	6,530	11,100	12,100	9,330	11,000	10,500	10,900	6,760	4,010	2,140
8	1,320	6,810	7,600	12,600	14,700	11,800	10,700	8,340	8,260	6,620	4,870	2,640
9	3,410	6,770	9,450	11,200	8,230	12,200	12,600	8,050	8,270	5,980	7,130	2,570
10	3,020	5,710	10,200	11,600	8,980	11,500	11,200	8,080	10,500	5,530	7,330	3,200
11	4,630	5,730	11,200	7,750	15,200	14,400	7,160	7,440	9,850	4,580	7,750	2,160
12	3,410	5,430	10,400	8,380	13,100	12,100	9,980	7,940	7,830	7,280	6,980	1,890
13	2,310	6,530	7,950	12,600	13,000	10,900	11,400	8,520	5,990	6,880	5,890	1,930
14	3,820	2,520	7,200	9,730	12,600	11,400	9,840	9,460	6,910	7,110	4,350	2,250
15	3,080	3,390	7,520	11,400	12,500	12,400	11,500	7,830	6,790	5,980	4,910	2,480
16	2,160	5,260	8,800	11,600	9,910	10,900	11,100	7,430	10,100	6,550	5,620	3,950
17	1,700	7,060	9,340	10,700	10,000	10,800	10,900	10,100	9,250	5,000	7,390	5,230
18	1,710	7,090	9,840	7,970	10,900	9,540	10,600	8,400	9,130	5,120	7,570	4,580
19	3,670	7,180	9,350	10,600	9,760	9,890	10,900	9,300	5,820	7,480	7,240	3,820
20	3,090	8,240	10,900	10,500	10,000	7,260	11,300	9,300	7,820	7,340	5,690	2,490
21	4,000	5,410	8,540	10,600	10,500	7,730	10,100	9,190	6,580	8,880	2,840	2,640
22	4,550	6,560	8,360	13,200	9,820	10,300	10,200	7,240	7,700	8,820	2,060	2,740
23	6,870	6,880	9,660	11,900	5,950	11,000	10,400	7,260	8,100	7,200	2,260	2,420
24	4,300	6,360	10,100	11,600	7,130	11,500	10,600	10,100	7,750	6,410	3,100	2,670
25	4,390	8,980	13,300	9,070	10,700	11,600	7,650	8,750	7,240	5,060	3,310	2,130
26	5,840	9,470	11,900	9,250	10,900	12,600	8,640	8,620	4,880	7,070	6,110	1,740
27	5,590	7,210	12,200	14,200	11,600	8,130	9,770	8,940	3,500	7,780	3,780	1,620
28	7,110	6,720	7,020	11,600	11,100	9,230	9,560	8,890	7,450	9,370	2,170	1,520
29	3,640		11,200	14,700	7,700	11,800	9,560	6,990	6,710	6,710	2,260	1,520
30	5,470		9,550	12,800	8,260	10,300	8,880	6,960	7,300	5,540	2,920	1,350
31	4,410		7,850		9,280		9,440	8,820		4,900		2,430
Total	125,170	174,075	287,997	330,453	330,820	323,148	314,490	264,753	230,035	206,272	151,779	79,489
Mean	4,038	6,217	9,290	11,020	10,670	10,770	10,140	8,540	7,668	6,654	5,059	2,564
Max	7,110	9,470	13,300	14,700	15,200	14,400	12,600	10,500	10,900	9,370	7,750	5,230
Min	1,320	2,520	6,380	7,750	5,950	7,260	7,160	6,960	3,500	4,580	2,060	1,350
Ac-ft	248,271	345,273	571,233	655,444	656,171	640,954	623,782	525,130	456,268	409,135	301,050	157,664

Calendar Year Summary

Annual Total 2,818,481 Annual Mean 7,722 Daily Max 15,200 Daily Min 1,320 Annual Ac-ft 5,590,375

Maximum Discharge

Date	Time	Elev	Discharge
May 11	03:00	304.42	19,017

Minimum Discharge

Date	Time	Elev	Discharge
Jan. 8	05:00	296.61	1,099

Colorado River Below Interstate Bridge

Location—Latitude 33° 35.362', longitude -114° 32.559', in the NW¼, lot 11 of Section 21, T. 3 N., R. 22 W., San Bernardino meridian, Riverside County, California, Hydrologic Unit 15030104, river mi 120.1, 2.8 mi southeast of Blythe, California, 61.6 mi north of Yuma, Arizona, and 91.9 river mi downstream of Parker Dam.

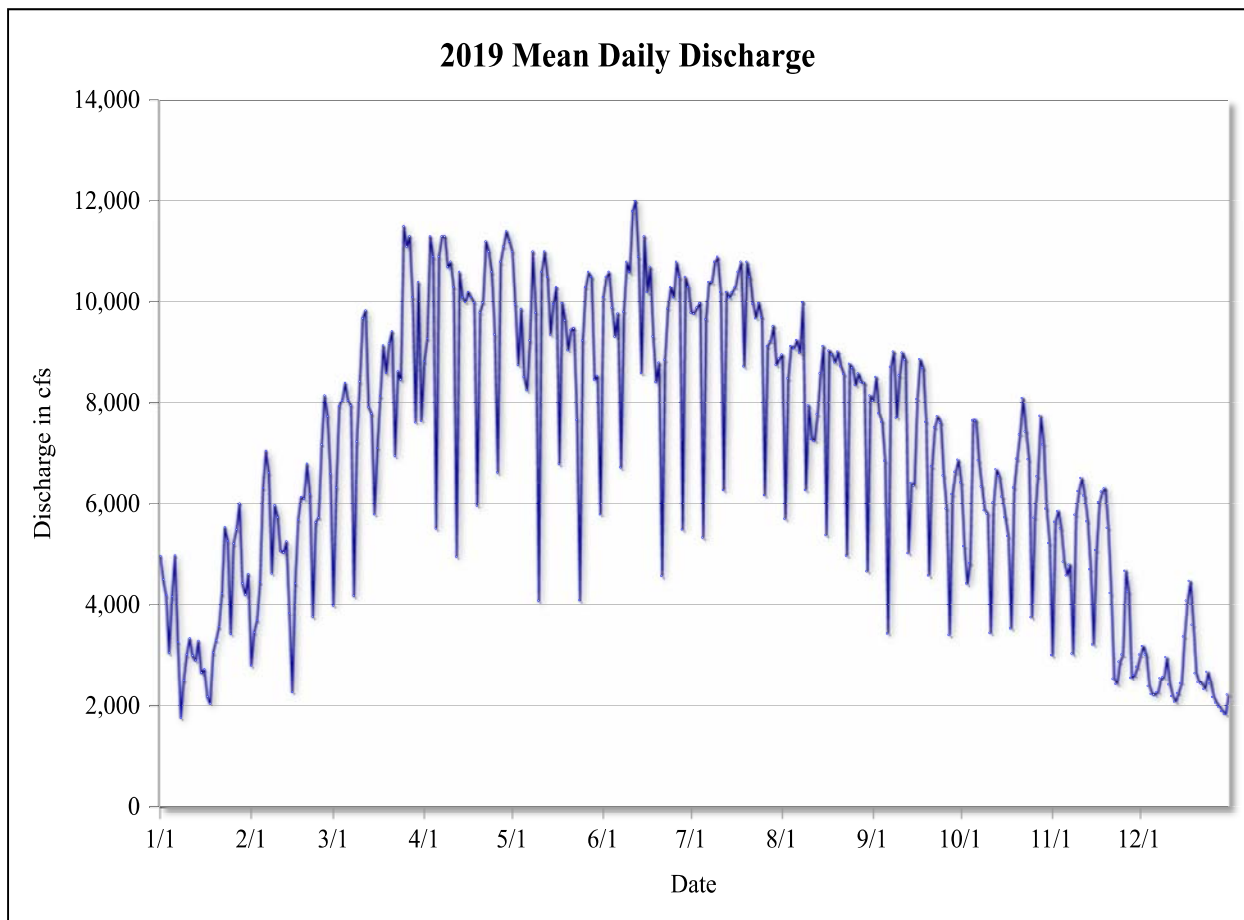
Drainage Area—184,300 mi².

Period of Record—January 1, 2011 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron stage discharge recorder shaft encoder (Model SDR-0001). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 16,800 cfs, Mar. 26, 2014; minimum daily discharge, 1,340 cfs, Dec. 23, 2015; maximum hourly discharge, 17,541 cfs, Mar. 27, 2014 at 07:00; minimum hourly discharge, 916 cfs, Dec. 23, 2013 at 19:00.

Remarks—None.



Colorado River Below Interstate Bridge

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	4,970	2,810	3,990	8,830	11,000	10,100	9,790	8,960	8,050	6,430	3,010	3,020
2	4,510	3,460	6,330	9,280	9,950	10,500	9,770	5,710	8,520	5,170	5,650	3,190
3	4,200	3,700	7,940	11,300	8,760	10,600	9,890	8,490	7,800	4,430	5,860	3,020
4	3,060	4,460	8,050	10,900	9,860	9,890	9,980	9,130	7,630	4,830	5,520	2,400
5	4,170	6,320	8,400	5,520	8,520	9,320	5,340	9,090	6,860	7,660	4,860	2,240
6	4,980	7,050	8,050	10,900	8,260	9,770	9,660	9,250	3,440	7,650	4,590	2,230
7	3,270	6,620	7,950	11,300	9,240	6,730	10,400	9,000	8,720	6,870	4,800	2,280
8	1,770	4,630	4,190	11,300	11,000	9,810	10,400	10,000	9,020	6,350	3,040	2,550
9	2,510	5,970	7,240	10,700	9,790	10,800	10,800	6,280	7,710	5,880	5,790	2,570
10	3,020	5,740	8,430	10,800	4,090	10,600	10,900	7,950	8,550	5,810	6,260	2,970
11	3,340	5,070	9,680	10,300	10,600	11,800	10,200	7,290	9,000	3,450	6,520	2,430
12	3,000	5,040	9,830	4,960	11,000	12,000	6,280	7,250	8,860	6,030	6,170	2,200
13	2,910	5,260	7,920	10,600	10,500	10,900	10,200	7,780	5,030	6,690	5,660	2,090
14	3,290	3,840	7,790	10,100	9,360	8,600	10,100	8,590	6,420	6,560	4,710	2,260
15	2,660	2,280	5,800	10,000	9,960	11,300	10,200	9,130	6,370	6,150	3,220	2,460
16	2,730	4,430	7,110	10,200	10,300	10,200	10,300	5,390	8,080	5,740	5,090	3,380
17	2,190	5,690	8,140	10,100	6,800	10,700	10,600	9,040	8,870	5,370	6,040	4,090
18	2,050	6,140	9,140	9,990	9,980	9,320	10,800	8,970	8,700	3,540	6,250	4,480
19	3,060	6,110	8,600	5,970	9,640	8,420	8,730	8,810	7,630	6,330	6,310	3,610
20	3,300	6,800	9,180	9,790	9,050	8,800	10,800	9,020	4,590	6,900	5,530	2,650
21	3,570	6,200	9,420	9,990	9,450	4,580	10,500	8,730	6,750	7,380	4,240	2,480
22	4,230	3,770	6,960	11,200	9,480	8,860	9,970	8,580	7,520	8,100	2,540	2,450
23	5,540	5,640	8,630	11,000	7,670	9,870	9,680	4,980	7,740	7,440	2,440	2,340
24	5,270	5,730	8,470	10,600	4,100	10,300	9,980	8,780	7,610	6,890	2,880	2,680
25	3,430	7,180	11,500	9,360	9,240	10,100	9,700	8,700	6,570	3,760	3,020	2,450
26	5,220	8,150	11,100	6,630	10,300	10,800	6,180	8,360	5,910	5,730	4,680	2,180
27	5,500	7,740	11,300	10,800	10,600	10,500	9,130	8,590	3,410	6,550	4,270	2,070
28	6,010	6,600	10,100	11,100	10,500	5,500	9,230	8,420	6,200	7,750	2,560	1,990
29	4,430		7,620	11,400	8,470	10,500	9,520	8,400	6,640	7,180	2,610	1,900
30	4,210		10,400	11,200	8,540	10,300	8,760	4,670	6,880	5,910	2,780	1,840
31	4,610		7,650		5,800		8,880	8,150		5,230		2,230
Total	117,017	152,416	256,978	296,284	281,774	291,218	296,667	251,467	215,083	189,748	136,880	80,687
Mean	3,775	5,443	8,290	9,876	9,089	9,707	9,570	8,112	7,169	6,121	4,563	2,603
Max	6,010	8,150	11,500	11,400	11,000	12,000	10,900	10,000	9,020	8,100	6,520	4,480
Min	1,770	2,280	3,990	4,960	4,090	4,580	5,340	4,670	3,410	3,450	2,440	1,840
Ac-ft	232,099	302,312	509,709	587,671	558,890	577,622	588,430	498,778	426,611	376,359	271,498	160,040

Calendar Year Summary

Annual Total 2,566,218 Annual Mean 7,031 Daily Max 12,000 Daily Min 1,770 Annual Ac-ft 5,090,019

Maximum Discharge

Date	Time	Elev	Discharge
Apr. 28	11:00	251.52	13,652

Minimum Discharge

Date	Time	Elev	Discharge
Jan. 8	18:00	244.30	1,585

Colorado River Below McIntyre Park

Location—Latitude 33° 30.659', longitude -114° 34.090', in the SE¼, lot 18 of Section 18, T. 2 N., R. 22 W., San Bernardino meridian, Riverside County, California, Hydrologic Unit 15030104, river mi 113.3, 6.9 mi southeast of Blythe, California, 56.1 mi north of Yuma, Arizona, and 78.7 river mi downstream of Parker Dam.

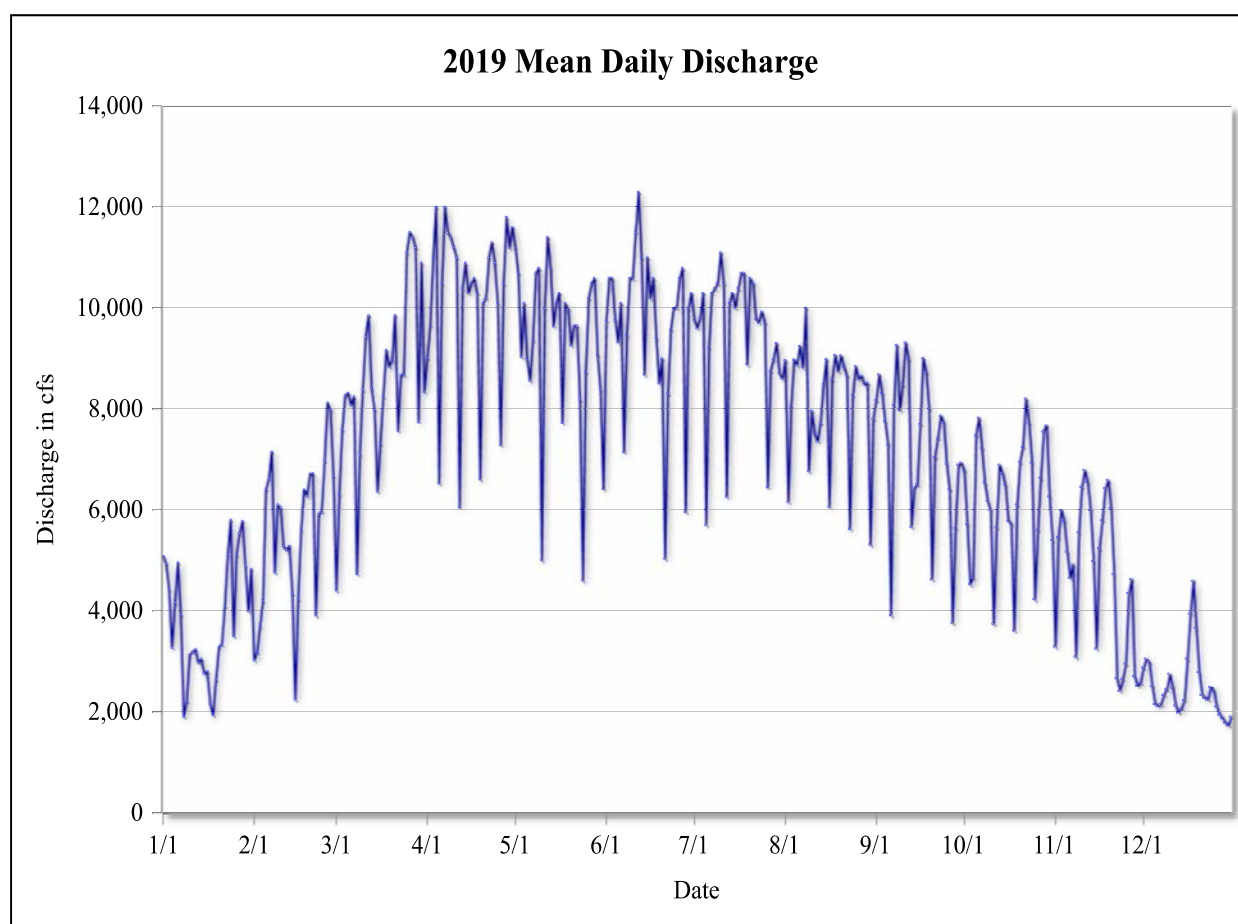
Drainage Area—184,400 mi².

Period of Record—January 1, 2011 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron stage discharge recorder shaft encoder (Model SDR-0001). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 17,200 cfs, Mar. 26, 2014; minimum daily discharge, 1,620 cfs, Dec. 22, 2018; maximum hourly discharge, 17,801 cfs, Mar. 27, 2014 at 10:00; minimum hourly discharge, 1,039 cfs, Dec. 23, 2013 at 22:00.

Remarks—None.



Colorado River Below McIntyre Park

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	5,090	3,040	4,420	9,020	11,200	9,750	9,760	8,970	8,180	6,790	3,300	2,880
2	4,940	3,190	6,320	9,650	10,700	10,600	9,600	6,170	8,690	5,720	5,460	3,060
3	4,440	3,700	7,590	11,000	9,040	10,600	9,800	8,060	8,320	4,540	6,000	3,000
4	3,280	4,210	8,270	12,000	10,100	9,760	10,300	8,980	7,760	4,660	5,780	2,510
5	4,170	6,410	8,320	6,540	8,990	9,330	5,710	8,880	7,300	7,480	5,180	2,160
6	4,960	6,630	8,090	10,500	8,570	10,100	9,220	9,250	3,920	7,830	4,660	2,130
7	3,930	7,150	8,250	12,000	9,370	7,150	10,300	8,830	8,080	7,230	4,920	2,150
8	1,910	4,770	4,740	11,500	10,700	9,470	10,400	10,000	9,270	6,550	3,100	2,340
9	2,210	6,110	7,100	11,400	10,800	10,600	10,500	6,780	7,980	6,180	5,560	2,450
10	3,130	6,050	8,390	11,200	5,010	10,600	11,100	7,960	8,490	6,000	6,460	2,760
11	3,190	5,290	9,440	11,000	9,990	11,500	10,500	7,500	9,320	3,750	6,800	2,480
12	3,240	5,220	9,850	6,060	11,400	12,300	6,270	7,360	8,990	5,660	6,560	2,130
13	2,990	5,290	8,420	10,400	10,800	11,000	10,100	7,720	5,670	6,900	6,000	1,990
14	3,060	4,360	7,990	10,900	9,640	8,690	10,300	8,490	6,450	6,740	4,990	2,070
15	2,770	2,250	6,370	10,300	10,100	11,000	10,000	8,990	6,510	6,510	3,260	2,240
16	2,810	4,250	7,320	10,500	10,300	10,200	10,400	6,070	7,700	5,790	5,250	3,060
17	2,160	5,600	8,260	10,600	7,730	10,600	10,700	8,590	9,010	5,730	5,800	3,950
18	1,940	6,410	9,170	10,300	10,100	9,410	10,700	9,070	8,740	3,620	6,440	4,600
19	2,650	6,290	8,850	6,620	9,970	8,520	8,890	8,750	8,010	6,110	6,600	3,670
20	3,290	6,720	8,970	10,100	9,270	9,000	10,600	9,060	4,630	6,960	6,040	2,790
21	3,340	6,730	9,850	10,200	9,640	5,040	10,500	8,840	7,050	7,250	4,730	2,340
22	4,110	3,920	7,570	11,000	9,640	8,310	9,780	8,670	7,420	8,210	2,670	2,280
23	5,120	5,910	8,680	11,300	8,190	9,570	9,710	5,630	7,870	7,720	2,420	2,250
24	5,800	5,960	8,680	10,900	4,610	10,000	9,920	8,280	7,740	6,940	2,660	2,500
25	3,510	6,990	11,100	10,100	8,740	10,000	9,710	8,850	6,920	4,240	2,960	2,410
26	5,130	8,130	11,500	7,290	10,200	10,600	6,460	8,600	6,410	5,610	4,360	2,110
27	5,540	7,980	11,400	10,500	10,500	10,800	8,760	8,660	3,770	6,640	4,630	1,950
28	5,780	6,690	11,200	11,800	10,600	5,960	8,990	8,490	5,640	7,560	2,710	1,880
29	4,900		7,750	11,200	9,090	9,990	9,310	8,520	6,900	7,670	2,520	1,790
30	4,000		10,900	11,600	8,390	10,300	8,710	5,320	6,940	6,270	2,580	1,740
31	4,830		8,350		6,420		8,610	7,810		5,410		1,910
Total	118,220	155,261	263,064	307,206	289,753	290,977	295,637	253,147	219,690	194,260	140,434	77,569
Mean	3,814	5,545	8,486	10,240	9,347	9,699	9,537	8,166	7,323	6,266	4,681	2,502
Max	5,800	8,130	11,500	12,000	11,400	12,300	11,100	10,000	9,320	8,210	6,800	4,600
Min	1,910	2,250	4,420	6,060	4,610	5,040	5,710	5,320	3,770	3,620	2,420	1,740
Ac-ft	234,487	307,955	521,779	609,334	574,717	577,145	586,387	502,110	435,749	385,309	278,547	153,856

Calendar Year Summary

Annual Total 2,605,218 Annual Mean 7,138 Daily Max 12,300 Daily Min 1,740 Annual Ac-ft 5,167,374

Maximum Discharge

Date	Time	Elev	Discharge
Apr. 7	14:00	242.30	13,893

Minimum Discharge

Date	Time	Elev	Discharge
Jan. 9	05:00	234.97	1,518

Colorado River at Taylor Ferry

Location—Latitude 33° 26.063', longitude -114° 37.567', in the SE¼, lot 4 of Section 10, T. 1 N., R. 23 W., Gila-Salt River meridian, La Paz County, Arizona, Hydrologic Unit 15030104, river mi 106.3, 12.4 mi south of Blythe, California, 50.8 mi north of Yuma, Arizona, and 85.7 river mi downstream of Parker Dam.

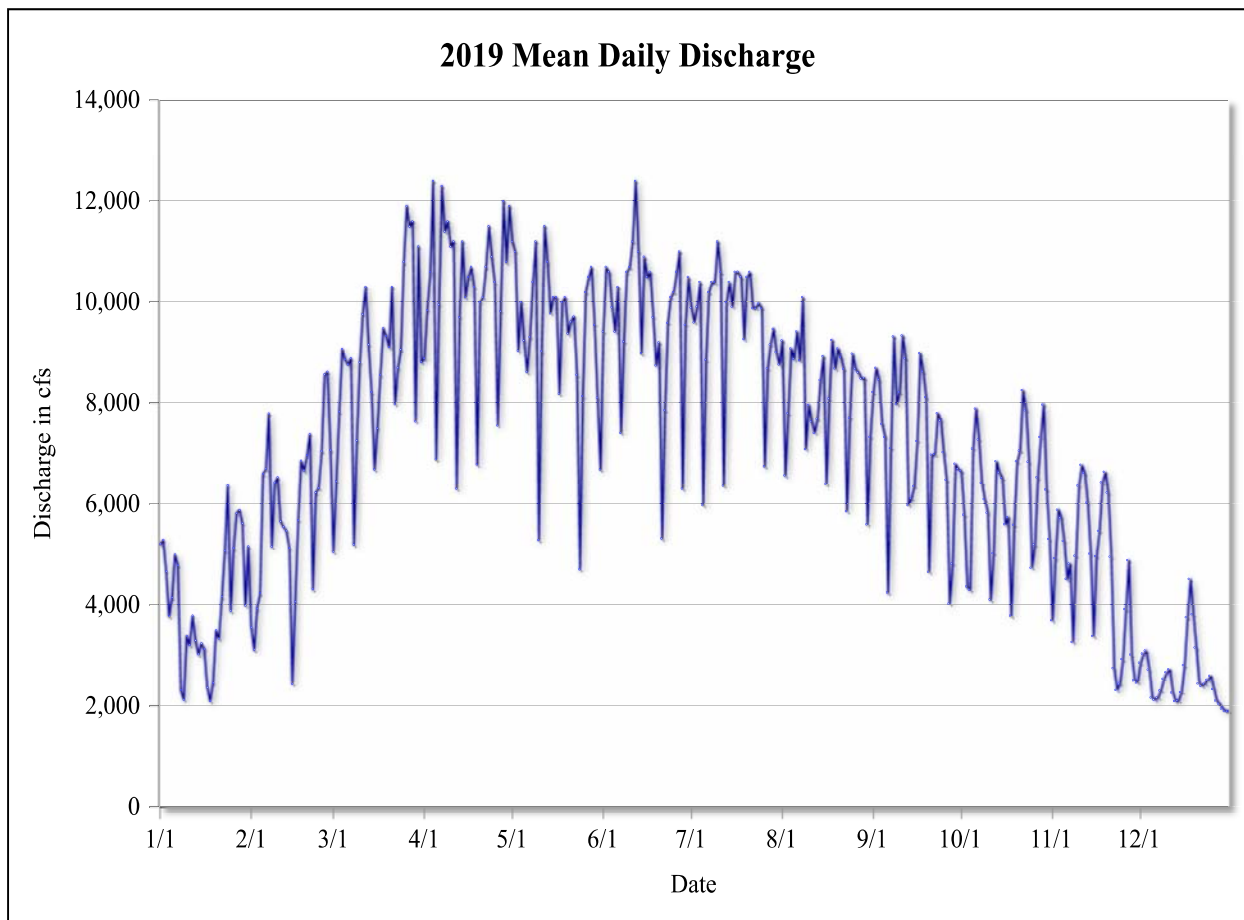
Drainage Area—184,400 mi².

Period of Record—January 1, 2005 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation with a Sutron multiple interface shaft encoder (Model 56-0540-400-DTR). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 16,400 cfs, Mar. 26, 2014; minimum daily discharge, 1,700 cfs, Dec. 23, 2011; maximum hourly discharge, 16,805 cfs, Mar. 27, 2014 at 11:00; minimum hourly discharge, 1,468 cfs, Dec. 24, 2014 at 08:00.

Remarks—None.



Colorado River at Taylor Ferry

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	5,210	3,560	5,060	8,890	11,200	9,420	9,890	9,240	8,220	6,660	3,700	2,860
2	5,290	3,120	6,450	9,840	11,000	10,700	9,600	6,570	8,700	5,790	4,930	3,040
3	4,670	3,930	7,830	10,600	9,040	10,600	9,910	7,800	8,470	4,370	5,890	3,100
4	3,780	4,240	9,070	12,400	10,000	9,900	10,400	9,080	7,590	4,310	5,730	2,720
5	4,150	6,600	8,870	6,890	9,240	9,420	5,980	8,880	7,330	7,100	5,270	2,170
6	5,000	6,700	8,770	9,950	8,620	10,300	8,860	9,420	4,250	7,890	4,520	2,130
7	4,790	7,790	8,890	12,300	9,310	7,410	10,200	8,850	7,110	7,280	4,820	2,170
8	2,320	5,160	5,200	11,400	10,400	9,220	10,400	10,100	9,320	6,420	3,270	2,310
9	2,130	6,420	7,260	11,600	11,200	10,600	10,400	7,090	7,980	6,100	4,980	2,540
10	3,390	6,530	8,810	11,100	5,290	10,700	11,200	7,960	8,220	5,830	6,370	2,670
11	3,210	5,660	9,760	11,200	9,030	11,200	10,600	7,640	9,340	4,110	6,780	2,730
12	3,790	5,550	10,300	6,310	11,500	12,400	6,370	7,410	8,890	5,030	6,620	2,270
13	3,300	5,470	9,160	9,700	10,800	11,000	10,000	7,690	5,980	6,850	6,030	2,100
14	3,030	5,130	8,220	11,200	9,780	8,990	10,400	8,460	6,120	6,630	5,020	2,110
15	3,240	2,440	6,690	10,100	10,100	10,900	9,910	8,930	6,360	6,520	3,390	2,280
16	3,130	4,070	7,500	10,500	10,100	10,500	10,600	6,400	7,250	5,600	4,970	2,810
17	2,370	5,680	8,560	10,700	8,190	10,600	10,600	8,090	8,990	5,740	5,470	3,760
18	2,100	6,860	9,480	10,300	10,000	9,700	10,500	9,250	8,630	3,790	6,430	4,520
19	2,460	6,670	9,330	6,790	10,100	8,750	9,270	8,690	8,120	5,590	6,640	3,820
20	3,500	6,970	9,110	10,000	9,380	9,200	10,500	9,080	4,660	6,850	6,230	3,160
21	3,340	7,380	10,300	10,100	9,610	5,320	10,600	8,910	6,980	7,060	4,960	2,450
22	4,170	4,320	7,980	10,700	9,710	7,860	9,880	8,680	6,990	8,260	2,750	2,400
23	5,080	6,230	8,700	11,500	8,560	9,590	9,880	5,860	7,800	7,860	2,320	2,440
24	6,370	6,320	9,060	10,900	4,710	10,100	9,970	7,710	7,660	6,840	2,440	2,520
25	3,890	7,050	10,800	10,400	8,140	10,200	9,880	8,980	7,030	4,740	2,930	2,600
26	5,130	8,570	11,900	7,560	10,200	10,600	6,750	8,680	6,480	5,200	3,920	2,340
27	5,820	8,620	11,500	9,820	10,500	11,000	8,690	8,610	4,030	6,530	4,890	2,110
28	5,880	7,070	11,600	12,000	10,700	6,310	9,160	8,490	4,820	7,330	3,020	2,050
29	5,620		7,640	10,800	9,550	9,550	9,470	8,500	6,800	7,970	2,510	1,950
30	3,990		11,100	11,900	8,110	10,500	9,010	5,600	6,700	6,290	2,470	1,900
31	5,160		8,820		6,690		8,770	7,330		5,310		1,900
Total	125,301	164,127	274,004	307,342	290,717	292,626	297,907	253,903	216,857	191,862	139,251	79,952
Mean	4,042	5,862	8,839	10,240	9,378	9,754	9,610	8,190	7,229	6,189	4,642	2,579
Max	6,370	8,620	11,900	12,400	11,500	12,400	11,200	10,100	9,340	8,260	6,780	4,520
Min	2,100	2,440	5,060	6,310	4,710	5,320	5,980	5,600	4,030	3,790	2,320	1,900
Ac-ft	248,531	325,542	543,478	609,604	576,629	580,416	590,891	503,609	430,130	380,552	276,201	158,582

Calendar Year Summary

Annual Total 2,633,850 Annual Mean 7,216 Daily Max 12,400 Daily Min 1,900 Annual Ac-ft 5,224,165

Maximum Discharge

Date	Time	Elev	Discharge
Apr. 7	16:00	234.28	13,669

Minimum Discharge

Date	Time	Elev	Discharge
Jan. 9	07:00	225.30	1,743

Colorado River Below Oxbow Bridge

Location—Latitude 33° 22.060', longitude -114° 42.195', in the NE¼ NE¼ of Section 25, T. 9 S., R. 21 E., San Bernardino meridian, Imperial County, California, Hydrologic Unit 15030104, river mi 98.5, 18.0 mi south of Blythe, California, 46.3 mi north of Yuma, Arizona, and 93.5 river mi downstream of Parker Dam.

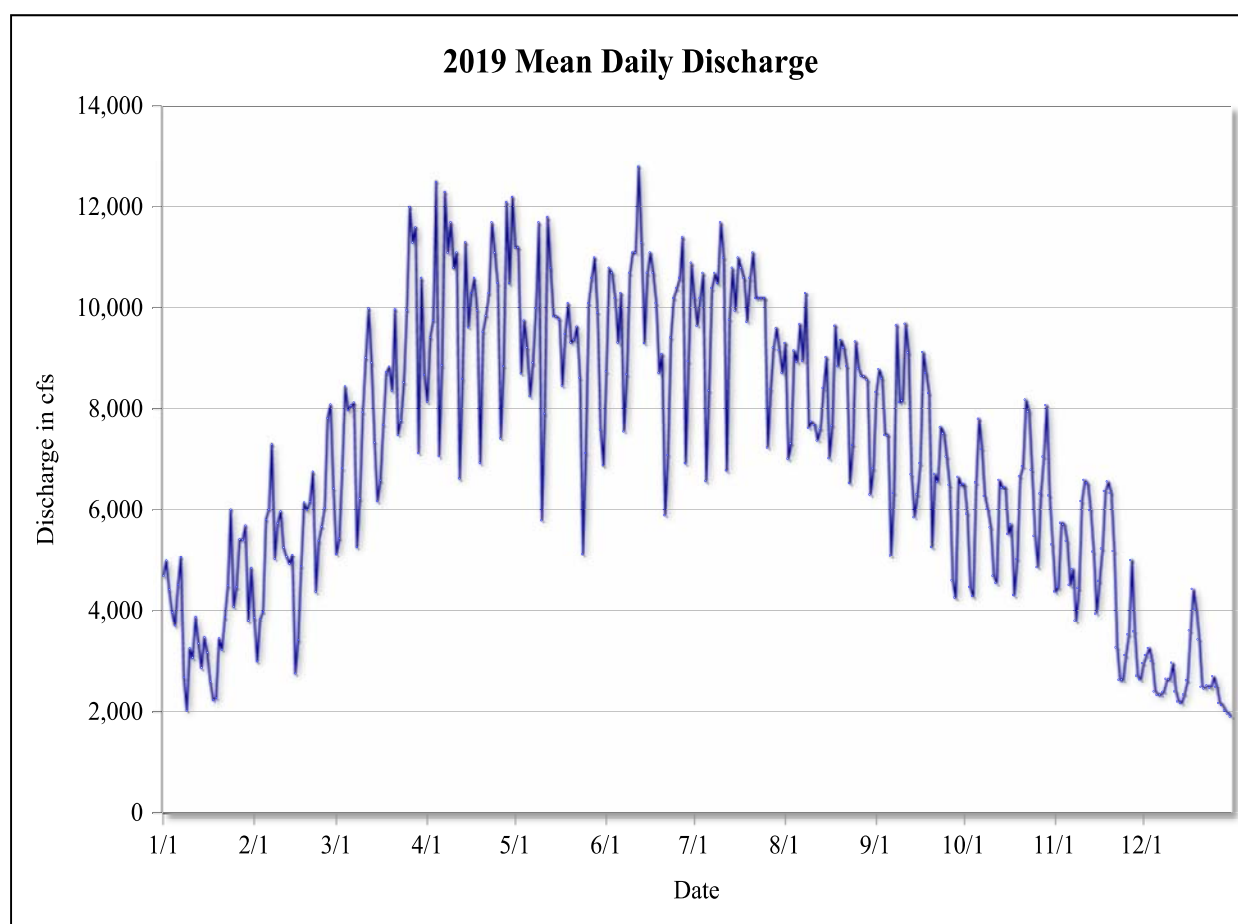
Drainage Area—184,700 mi².

Period of Record—January 1, 2011 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron stage discharge recorder shaft encoder (Model SDR-0001). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 17,100 cfs, Mar. 27, 2014; minimum daily discharge, 1,200 cfs, Dec. 24, 2015; maximum hourly discharge, 17,439 cfs, Mar. 27, 2014 at 15:00; minimum hourly discharge, 1,017 cfs, Dec. 24, 2015 at 08:00.

Remarks—None.



Colorado River Below Oxbow Bridge

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	4,700	3,870	5,130	8,150	11,200	8,750	10,200	9,310	8,340	6,520	4,390	2,970
2	5,000	3,010	5,440	9,420	11,200	10,800	9,650	7,020	8,790	5,930	4,480	3,130
3	4,430	3,840	6,830	9,760	8,710	10,700	10,200	7,320	8,610	4,480	5,750	3,270
4	3,970	3,980	8,450	12,500	9,750	10,200	10,700	9,160	7,490	4,300	5,720	3,010
5	3,720	5,810	7,980	7,070	9,220	9,320	6,580	8,940	7,480	6,550	5,390	2,410
6	4,520	6,010	8,070	8,870	8,260	10,300	8,370	9,680	5,100	7,810	4,520	2,340
7	5,070	7,300	8,130	12,300	8,920	7,560	10,400	8,960	6,340	7,210	4,830	2,340
8	2,690	5,040	5,270	11,100	10,000	8,690	10,700	10,300	9,660	6,280	3,810	2,400
9	2,030	5,740	6,230	11,700	11,700	10,700	10,500	7,630	8,140	6,020	4,460	2,660
10	3,260	5,970	7,940	10,800	5,800	11,100	11,700	7,750	8,170	5,660	6,180	2,650
11	3,080	5,260	9,020	11,100	7,910	11,100	11,000	7,690	9,690	4,700	6,600	2,980
12	3,880	5,080	9,990	6,630	11,800	12,800	6,790	7,380	9,120	4,560	6,540	2,410
13	3,360	4,940	8,920	8,600	10,800	11,300	9,770	7,610	6,710	6,600	6,000	2,210
14	2,880	5,110	7,340	11,300	9,840	9,310	10,800	8,420	5,860	6,450	5,180	2,180
15	3,480	2,770	6,180	9,620	9,830	10,700	9,950	9,030	6,310	6,460	3,950	2,350
16	3,180	3,430	6,590	10,300	9,780	11,100	11,000	7,030	6,930	5,530	4,600	2,630
17	2,610	4,890	7,690	10,600	8,470	10,700	10,800	7,670	9,130	5,720	5,240	3,620
18	2,240	6,150	8,730	9,950	9,490	10,100	10,600	9,650	8,720	4,320	6,380	4,440
19	2,280	6,000	8,840	6,940	10,100	8,720	9,730	8,850	8,320	5,030	6,570	4,040
20	3,460	6,170	8,370	9,530	9,320	9,090	10,600	9,370	5,270	6,670	6,340	3,440
21	3,240	6,760	9,970	9,850	9,370	5,900	11,100	9,220	6,720	6,870	5,190	2,500
22	3,880	4,390	7,490	10,300	9,630	7,090	10,200	8,850	6,570	8,190	3,280	2,470
23	4,510	5,390	7,780	11,700	8,620	9,420	10,200	6,540	7,640	7,950	2,640	2,530
24	6,010	5,670	8,530	11,100	5,130	10,200	10,200	7,290	7,520	6,800	2,640	2,480
25	4,090	6,040	9,960	10,500	7,130	10,400	10,200	9,340	7,060	5,490	3,130	2,710
26	4,480	7,820	12,000	7,420	10,100	10,600	7,240	8,810	6,500	4,870	3,540	2,500
27	5,420	8,090	11,300	8,850	10,600	11,400	8,400	8,660	4,610	6,330	5,010	2,180
28	5,410	6,430	11,600	12,100	11,000	6,930	9,220	8,650	4,270	7,060	3,600	2,140
29	5,690		7,130	10,500	9,910	8,950	9,600	8,580	6,660	8,080	2,720	2,030
30	3,810		10,600	12,200	7,590	10,900	9,170	6,310	6,500	6,290	2,650	1,970
31	4,850		8,680		6,890		8,720	6,830		5,320		1,910
Total	121,238	150,942	256,266	300,847	288,016	294,805	304,156	257,816	218,232	190,042	141,316	82,916
Mean	3,911	5,391	8,267	10,030	9,291	9,827	9,811	8,317	7,274	6,130	4,711	2,675
Max	6,010	8,090	12,000	12,500	11,800	12,800	11,700	10,300	9,690	8,190	6,600	4,440
Min	2,030	2,770	5,130	6,630	5,130	5,900	6,580	6,310	4,270	4,300	2,640	1,910
Ac-ft	240,473	299,389	508,296	596,721	571,271	584,738	603,285	511,371	432,858	376,943	280,297	164,461

Calendar Year Summary

Annual Total 2,606,594 Annual Mean 7,141 Daily Max 12,800 Daily Min 1,910 Annual Ac-ft 5,170,103

Maximum Discharge

Date	Time	Elev	Discharge
Apr. 7	19:00	222.80	13,402

Minimum Discharge

Date	Time	Elev	Discharge
Dec. 31	00:00	215.96	1,887

Colorado River at Cibola Gage

Location—Latitude 33° 13.256', longitude -114° 40.354', in the NE¼ SW¼ of Section 30, T. 2 S., R. 23 W., Gila-Salt River meridian, La Paz County, Arizona, Hydrologic Unit 15030104, river mi 86.9, 27.4 mi south of Blythe, California, 36.2 mi north of Yuma, Arizona, and 105.1 river mi downstream of Parker Dam.

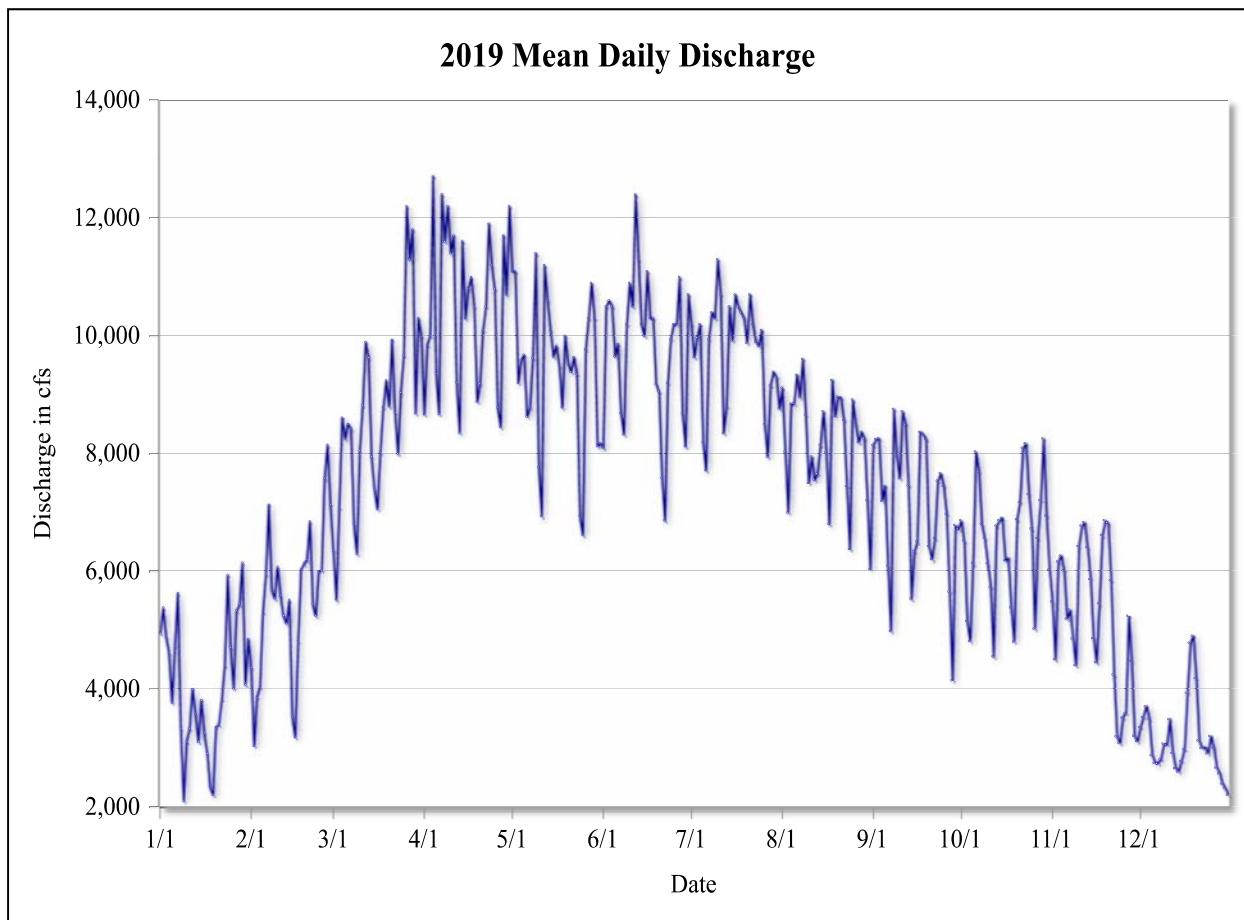
Drainage Area—185,100 mi².

Period of Record—January 1, 2005 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron multiple interface shaft encoder (Model 56-0540-400-DTR). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 17,300 cfs, Mar. 27, 2014; minimum daily discharge, 2,110 cfs, Jan. 9, 2019; maximum hourly discharge, 17,615 cfs, Mar. 27, 2014 at 19:00; minimum hourly discharge, 1,978 cfs, Jan. 9, 2019 at 18:00.

Remarks—None.



Colorado River at Cibola Gage

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	4,950	4,370	6,350	8,670	11,100	8,110	10,200	9,120	8,150	6,870	5,490	3,360
2	5,390	3,040	5,530	9,840	11,100	10,500	9,640	8,040	8,250	6,520	4,510	3,530
3	4,890	3,860	7,080	10,000	9,200	10,600	9,970	7,000	8,260	5,160	6,170	3,710
4	4,620	4,030	8,610	12,700	9,590	10,500	10,200	8,850	7,200	4,820	6,270	3,500
5	3,770	5,330	8,260	9,360	9,680	9,650	8,200	8,850	7,450	6,140	6,020	2,880
6	4,730	5,940	8,500	8,680	8,630	9,860	7,720	9,340	6,100	8,040	5,200	2,750
7	5,630	7,130	8,420	12,400	8,790	8,690	9,940	8,970	4,990	7,700	5,360	2,740
8	3,330	5,680	6,810	11,600	9,620	8,330	10,400	9,610	8,760	6,810	4,860	2,810
9	2,110	5,550	6,300	12,200	11,400	10,200	10,300	8,660	7,960	6,570	4,410	3,080
10	3,110	6,080	8,050	11,400	7,770	10,900	11,300	7,500	7,590	6,140	6,430	3,060
11	3,330	5,600	8,820	11,700	6,940	10,500	10,700	7,950	8,720	5,740	6,780	3,490
12	4,000	5,250	9,890	9,210	11,200	12,400	8,350	7,560	8,500	4,560	6,840	2,920
13	3,580	5,120	9,630	8,360	10,600	11,300	8,810	7,660	7,460	6,780	6,410	2,660
14	3,110	5,520	7,950	11,600	10,100	10,200	10,500	8,150	5,540	6,870	5,870	2,600
15	3,810	3,530	7,390	10,300	9,650	10,000	9,920	8,720	6,340	6,910	4,870	2,780
16	3,260	3,190	7,060	10,800	9,830	11,100	10,700	8,030	6,510	6,190	4,460	2,980
17	2,910	4,810	8,020	11,000	9,490	10,300	10,500	6,810	8,370	6,230	5,460	3,940
18	2,340	6,040	8,790	10,500	8,790	10,300	10,400	9,250	8,330	5,390	6,620	4,790
19	2,210	6,140	9,240	8,890	10,000	9,180	10,300	8,640	8,250	4,810	6,870	4,910
20	3,360	6,200	8,810	9,190	9,540	9,060	9,880	8,970	6,430	6,890	6,830	4,190
21	3,400	6,850	9,930	10,100	9,390	7,590	10,700	8,960	6,210	7,180	5,850	3,130
22	3,820	5,450	8,700	10,500	9,640	6,870	10,200	8,570	6,570	8,100	4,250	3,000
23	4,410	5,250	8,000	11,900	9,350	9,200	9,900	7,450	7,540	8,180	3,200	3,020
24	5,930	5,990	9,040	11,200	6,940	9,940	9,830	6,380	7,670	7,310	3,090	2,910
25	4,710	6,010	9,670	10,800	6,630	10,200	10,100	8,920	7,450	6,730	3,520	3,210
26	4,010	7,580	12,200	8,780	9,770	10,200	8,500	8,500	6,980	5,030	3,590	3,010
27	5,340	8,150	11,300	8,450	10,300	11,000	7,950	8,200	5,660	6,570	5,250	2,670
28	5,450	7,140	11,800	11,700	10,900	8,680	9,160	8,370	4,150	7,210	4,480	2,570
29	6,150		8,690	10,700	10,300	8,130	9,390	8,260	6,790	8,260	3,210	2,400
30	4,080		10,300	12,200	8,140	10,700	9,300	7,210	6,730	6,950	3,120	2,320
31	4,850		9,990		8,180		8,770	6,040		6,030		2,210
Total	126,565	154,828	269,084	314,518	292,508	294,364	301,665	254,561	214,912	202,709	155,287	97,144
Mean	4,083	5,530	8,680	10,480	9,436	9,812	9,731	8,212	7,164	6,539	5,176	3,134
Max	6,150	8,150	12,200	12,700	11,400	12,400	11,300	9,610	8,760	8,260	6,870	4,910
Min	2,110	3,040	5,530	8,360	6,630	6,870	7,720	6,040	4,150	4,560	3,090	2,210
Ac-ft	251,037	307,096	533,720	623,837	580,181	583,862	598,343	504,915	426,272	402,068	308,007	192,683

Calendar Year Summary

Annual Total 2,678,144 Annual Mean 7,337 Daily Max 12,700 Daily Min 2,110 Annual Ac-ft 5,312,022

Maximum Discharge

Date	Time	Elev	Discharge
Apr. 8	00:00	209.39	13,352

Minimum Discharge

Date	Time	Elev	Discharge
Jan. 9	18:00	204.88	1,978

Colorado River at Picacho Park

Location—Latitude 33° 01.522', longitude -114° 36.692', in the SE ¼ of Section 24, T. 13 S., R. 22 E., Gila-Salt River meridian, Imperial County, California, Hydrologic Unit 15030104, river mi 67.8, 40.3 mi south of Blythe, California, 22.5 mi northeast of Yuma, Arizona, and 124.2 mi downstream of Parker Dam.

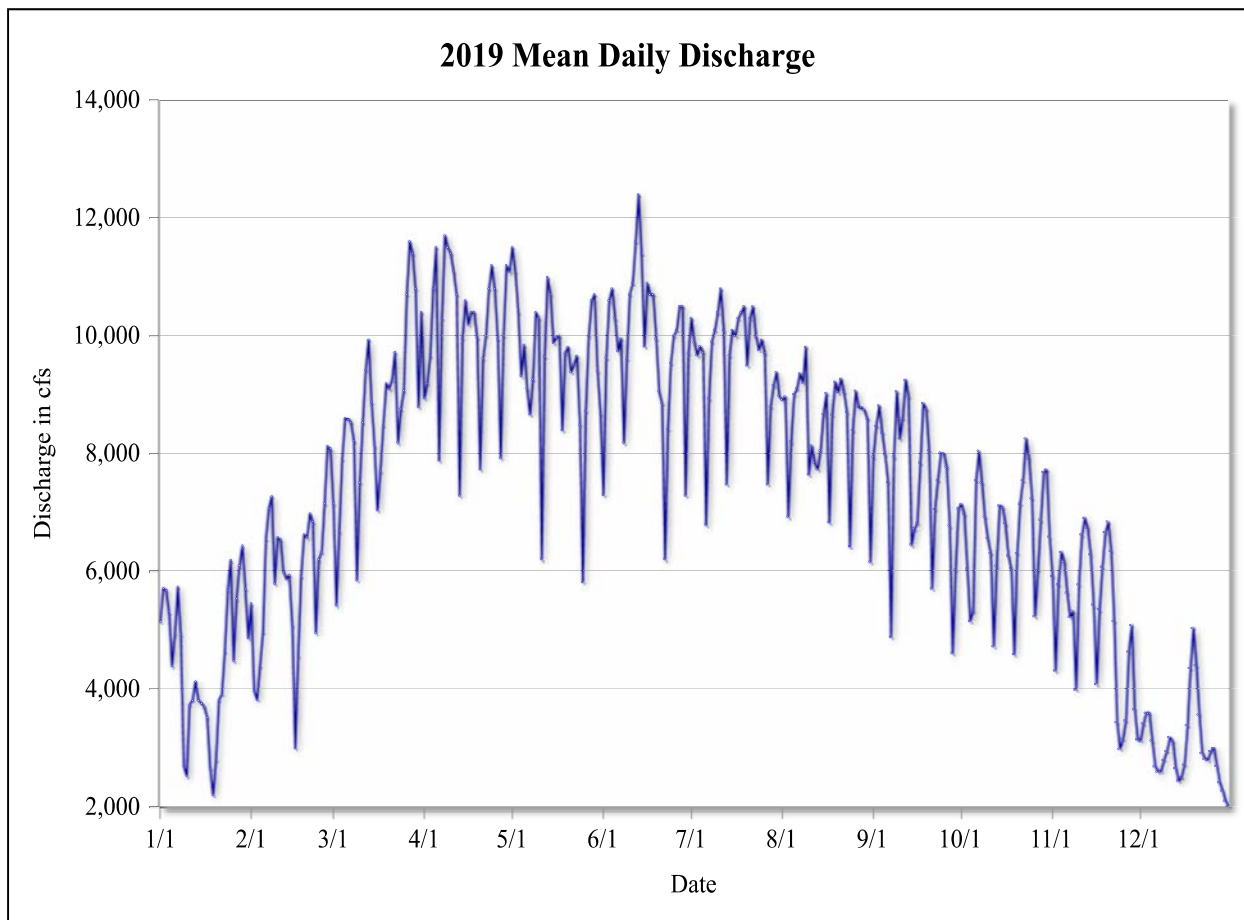
Drainage Area—185,900 mi².

Period of Record—March 27, 2012 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron multiple interface shaft encoder (Model 56-0540-400-DTR). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 16,000 cfs, Mar. 28, 2014; minimum daily discharge, 1,810 cfs, Dec. 23, 2018; maximum hourly discharge, 16,111 cfs, Mar. 28, 2014 at 08:00; minimum hourly discharge 1,740 cfs, Dec. 24, 2013 at 22:00.

Remarks—None.



Colorado River at Picacho Park

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	5,150	5,460	7,150	8,950	11,500	7,300	10,300	8,920	7,950	7,140	5,920	3,140
2	5,710	3,970	5,440	9,190	11,100	9,630	9,890	8,970	8,470	6,970	4,320	3,420
3	5,680	3,820	6,690	9,660	10,400	10,600	9,670	6,930	8,820	6,050	5,780	3,600
4	5,320	4,400	7,910	10,800	9,320	10,800	9,820	8,210	8,360	5,160	6,330	3,590
5	4,400	4,970	8,600	11,500	9,840	10,300	9,720	9,010	7,990	5,350	6,170	3,130
6	4,940	6,560	8,580	7,890	9,110	9,740	6,800	9,110	7,520	7,550	5,640	2,690
7	5,730	7,070	8,530	10,300	8,670	9,950	8,940	9,360	4,890	8,050	5,230	2,600
8	4,930	7,270	8,220	11,700	9,260	8,190	9,900	9,210	7,950	7,510	5,340	2,610
9	2,700	5,790	5,850	11,500	10,400	9,610	10,100	9,810	9,060	6,930	3,990	2,800
10	2,530	6,580	7,510	11,400	10,300	10,700	10,400	7,650	8,260	6,570	5,780	2,950
11	3,730	6,550	8,530	11,100	6,210	10,900	10,800	8,140	8,600	6,310	6,630	3,190
12	3,810	5,990	9,420	10,700	9,650	11,600	10,100	7,850	9,250	4,730	6,910	3,120
13	4,130	5,870	9,930	7,290	11,000	12,400	7,480	7,740	8,980	6,100	6,740	2,660
14	3,810	5,930	8,880	9,960	10,700	11,400	9,670	8,050	6,460	7,120	6,290	2,450
15	3,760	5,090	8,140	10,600	9,880	9,820	10,100	8,670	6,730	7,090	5,440	2,510
16	3,700	3,000	7,040	10,200	9,970	10,900	10,000	9,030	6,830	6,820	4,090	2,720
17	3,520	4,580	7,700	10,400	10,000	10,700	10,300	6,840	7,850	6,270	5,360	3,390
18	2,660	5,910	8,480	10,400	8,400	10,700	10,400	8,660	8,860	6,060	6,080	4,360
19	2,210	6,630	9,190	9,960	9,710	9,950	10,500	9,220	8,760	4,600	6,670	5,040
20	2,800	6,590	9,110	7,740	9,810	9,060	9,500	9,050	8,060	6,310	6,850	4,410
21	3,810	6,980	9,250	9,610	9,390	8,860	10,300	9,270	5,710	7,150	6,350	3,570
22	3,910	6,850	9,720	10,000	9,520	6,210	10,500	9,050	7,060	7,550	5,160	2,920
23	4,650	4,960	8,190	10,800	9,660	8,420	9,990	8,710	7,550	8,260	3,440	2,820
24	5,680	6,200	8,760	11,200	8,490	9,540	9,760	6,430	8,020	7,910	2,990	2,800
25	6,190	6,330	9,070	10,800	5,820	10,000	9,930	8,400	8,010	7,240	3,160	2,950
26	4,490	7,150	10,700	9,940	8,730	10,100	9,710	9,070	7,780	5,240	3,470	3,000
27	5,540	8,130	11,600	7,930	10,000	10,500	7,480	8,790	6,780	6,020	4,640	2,700
28	6,100	8,090	11,400	10,000	10,600	10,500	8,800	8,790	4,620	6,880	5,090	2,420
29	6,440		10,800	11,200	10,700	7,290	9,160	8,740	6,030	7,690	3,660	2,280
30	5,700		8,800	11,100	9,400	9,710	9,380	8,590	7,070	7,730	3,150	2,110
31	4,870		10,400		8,680		8,980	6,170		6,590		2,020
Total	138,598	166,734	269,656	303,644	296,356	295,486	298,452	262,446	228,271	206,952	156,668	93,973
Mean	4,471	5,955	8,699	10,120	9,560	9,850	9,627	8,466	7,609	6,676	5,222	3,031
Max	6,440	8,130	11,600	11,700	11,500	12,400	10,800	9,810	9,250	8,260	6,910	5,040
Min	2,210	3,000	5,440	7,290	5,820	6,210	6,800	6,170	4,620	4,600	2,990	2,020
Ac-ft	274,906	330,711	534,854	602,270	587,813	586,087	591,972	520,553	452,769	410,482	310,746	186,392

Calendar Year Summary

Annual Total 2,717,235 Annual Mean 7,444 Daily Max 12,400 Daily Min 2,020 Annual Ac-ft 5,389,557

Maximum Discharge

Date	Time	Elev	Discharge
Jun. 13	10:00	192.93	12,694

Minimum Discharge

Date	Time	Elev	Discharge
Jan. 10	05:00	187.24	1,897

Colorado River at Martinez Lake

Location—Latitude 32° 59.847', longitude -114° 29.821', in the NW¼ NE¼ of Section 14, T. 5 S., R. 22 W., Gila-Salt River meridian, Yuma County, Arizona, Hydrologic Unit 15030104, river mi 59.4, 42.6 mi south of Blythe, California, 21.9 mi north of Yuma, Arizona, and 132.6 mi downstream of Parker Dam.

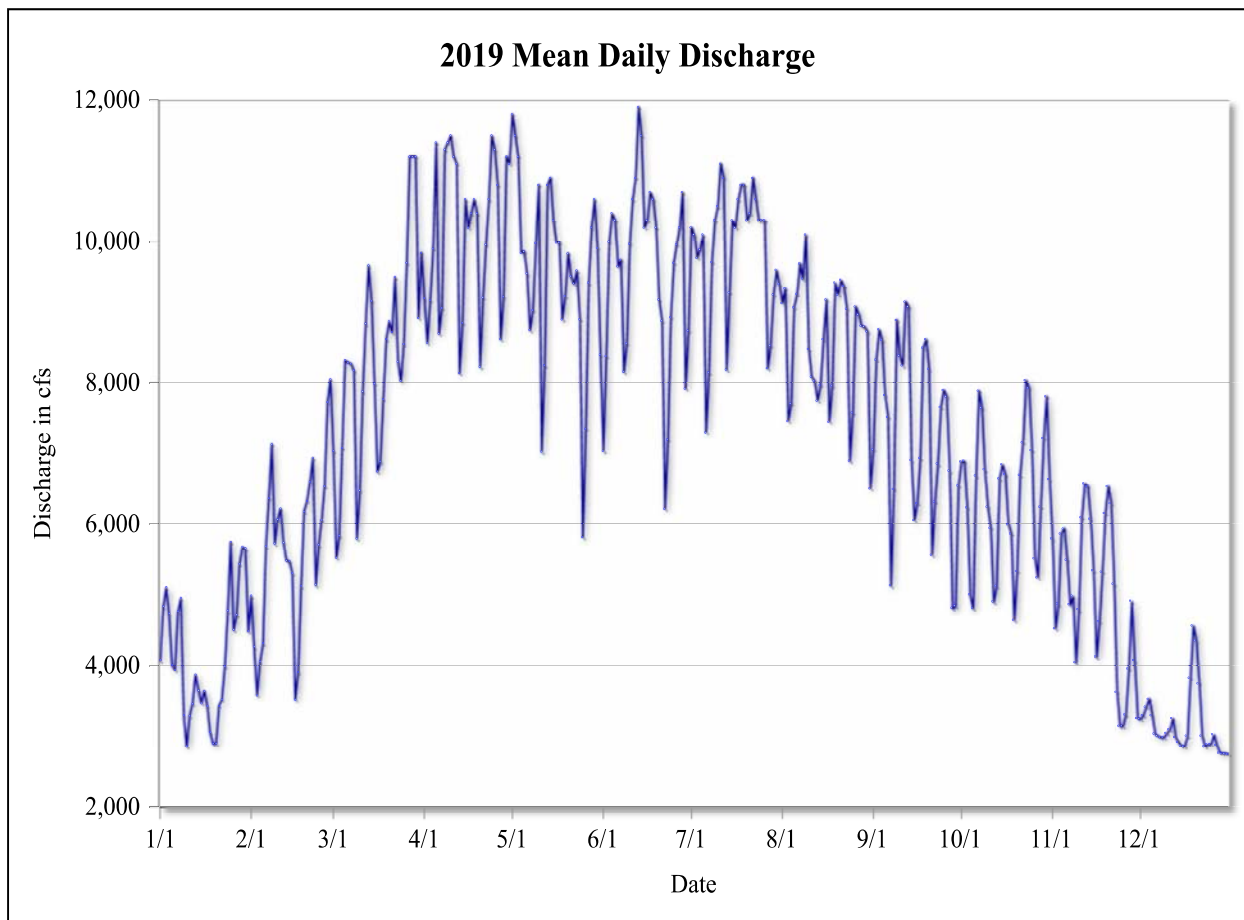
Drainage Area—186,200 mi².

Period of Record—January 1, 2012 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation measured with a Sutron multiple interface shaft encoder (Model 56-0540-400-DTR). Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 14,500 cfs, Mar. 28, 2014; minimum daily discharge, 2,040 cfs, Dec. 29, 2018; maximum hourly discharge, 14,628 cfs, Mar. 28, 2014 at 17:00; minimum hourly discharge 1,987 cfs, Dec. 30, 2018 at 17:00.

Remarks—The discharge record was estimated from Mar. 6, 2019 at 11:00 to Mar. 7, 2019 at 09:00 due to equipment failure.



Colorado River at Martinez Lake

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	4,080	4,990	7,040	9,200	11,800	7,040	10,200	9,130	7,060	6,890	5,800	3,250
2	4,840	4,270	5,530	8,570	11,500	8,380	10,100	9,340	8,330	6,900	4,530	3,300
3	5,110	3,580	5,840	9,170	11,200	10,000	9,770	7,460	8,760	6,240	4,880	3,420
4	4,740	4,060	7,080	9,900	9,840	10,400	9,890	7,710	8,610	5,010	5,870	3,530
5	4,010	4,320	8,320	11,400	9,860	10,300	10,100	9,070	7,830	4,820	5,940	3,300
6	3,940	5,690	8,290	8,700	9,550	9,650	7,300	9,260	7,520	6,690	5,500	3,040
7	4,770	6,370	8,270	9,060	8,750	9,740	8,150	9,690	5,140	7,890	4,870	3,010
8	4,960	7,130	8,180	11,300	9,030	8,160	9,710	9,480	6,500	7,650	4,990	2,990
9	3,300	5,730	5,800	11,400	9,980	8,560	10,300	10,100	8,890	6,780	4,050	2,990
10	2,860	6,070	6,480	11,500	10,800	9,970	10,500	8,480	8,390	6,250	4,800	3,050
11	3,290	6,220	7,880	11,200	7,030	10,600	11,100	8,090	8,250	5,950	6,100	3,100
12	3,460	5,740	8,840	11,100	8,250	10,900	10,900	8,030	9,150	4,910	6,580	3,260
13	3,870	5,490	9,660	8,140	10,800	11,900	8,190	7,750	9,080	5,130	6,540	2,990
14	3,650	5,480	9,160	8,850	10,900	11,500	9,280	7,970	6,910	6,650	6,080	2,920
15	3,470	5,310	7,990	10,600	10,300	10,200	10,300	8,620	6,060	6,850	5,350	2,870
16	3,640	3,520	6,750	10,200	9,990	10,300	10,200	9,180	6,300	6,710	4,130	2,860
17	3,430	3,910	6,890	10,400	9,990	10,700	10,600	7,450	6,940	6,000	4,630	3,010
18	3,060	5,130	7,770	10,600	8,900	10,600	10,800	7,960	8,500	5,870	5,330	3,830
19	2,900	6,180	8,620	10,400	9,230	10,200	10,800	9,420	8,620	4,650	6,160	4,570
20	2,900	6,330	8,870	8,230	9,830	9,180	10,300	9,250	8,200	5,340	6,540	4,360
21	3,430	6,600	8,720	9,210	9,510	8,880	10,400	9,460	5,570	6,700	6,300	3,750
22	3,520	6,940	9,500	9,960	9,410	6,220	10,900	9,370	6,320	7,160	5,160	3,010
23	3,990	5,150	8,300	10,600	9,590	7,200	10,600	9,050	6,860	8,040	3,630	2,860
24	4,780	5,710	8,030	11,500	8,900	8,930	10,300	6,900	7,660	7,930	3,150	2,890
25	5,750	6,060	8,550	11,300	5,820	9,700	10,300	7,580	7,900	7,050	3,150	2,890
26	4,510	6,540	9,700	10,800	7,350	9,960	10,300	9,080	7,810	5,520	3,310	3,030
27	4,720	7,730	11,200	8,620	9,420	10,200	8,210	8,970	6,760	5,250	3,960	2,880
28	5,440	8,050	11,200	9,220	10,200	10,700	8,530	8,810	4,820	6,250	4,920	2,770
29	5,680		11,200	11,200	10,600	7,920	9,250	8,800	4,850	7,220	4,080	2,760
30	5,660		8,920	11,100	9,910	8,740	9,600	8,730	6,550	7,810	3,260	2,760
31	4,490		9,840		8,400		9,400	6,510		6,640		2,750
Total	128,258	158,295	258,492	303,384	296,667	286,839	306,178	266,667	220,138	198,740	149,579	97,996
Mean	4,137	5,653	8,338	10,110	9,570	9,561	9,877	8,602	7,338	6,411	4,986	3,161
Max	5,750	8,050	11,200	11,500	11,800	11,900	11,100	10,100	9,150	8,040	6,580	4,570
Min	2,860	3,520	5,530	8,140	5,820	6,220	7,300	6,510	4,820	4,650	3,150	2,750
Ac-ft	254,396	313,973	512,711	601,754	588,431	568,938	607,296	528,926	436,637	394,196	296,687	194,373

Calendar Year Summary

Annual Total 2,671,235 Annual Mean 7,318 Daily Max 11,900 Daily Min 2,750 Annual Ac-ft 5,298,317

Maximum Discharge

Date	Time	Elev	Discharge
Jun. 13	16:00	187.11	12,060

Minimum Discharge

Date	Time	Elev	Discharge
Jan. 1	00:00	182.43	2,748

Bold values indicate the daily value was derived from hourly data that contained 6 or more consecutive hours of estimated record.



Diversion and Return Gaging Stations

Fort Mojave Tribe-Nevada

Location—Latitude 35° 02.940', longitude -114° 37.360', in the NW¼ NW¼ of Section 27, T. 33 S., R. 66 E., Mount Diablo meridian, Clark County, Nevada, Hydrologic Unit 15030101, river mi 261.0, 4.8 mi south of Bullhead City, Arizona, 14.5 mi north of Needles, California, and 14.9 river mi downstream of Davis Dam.

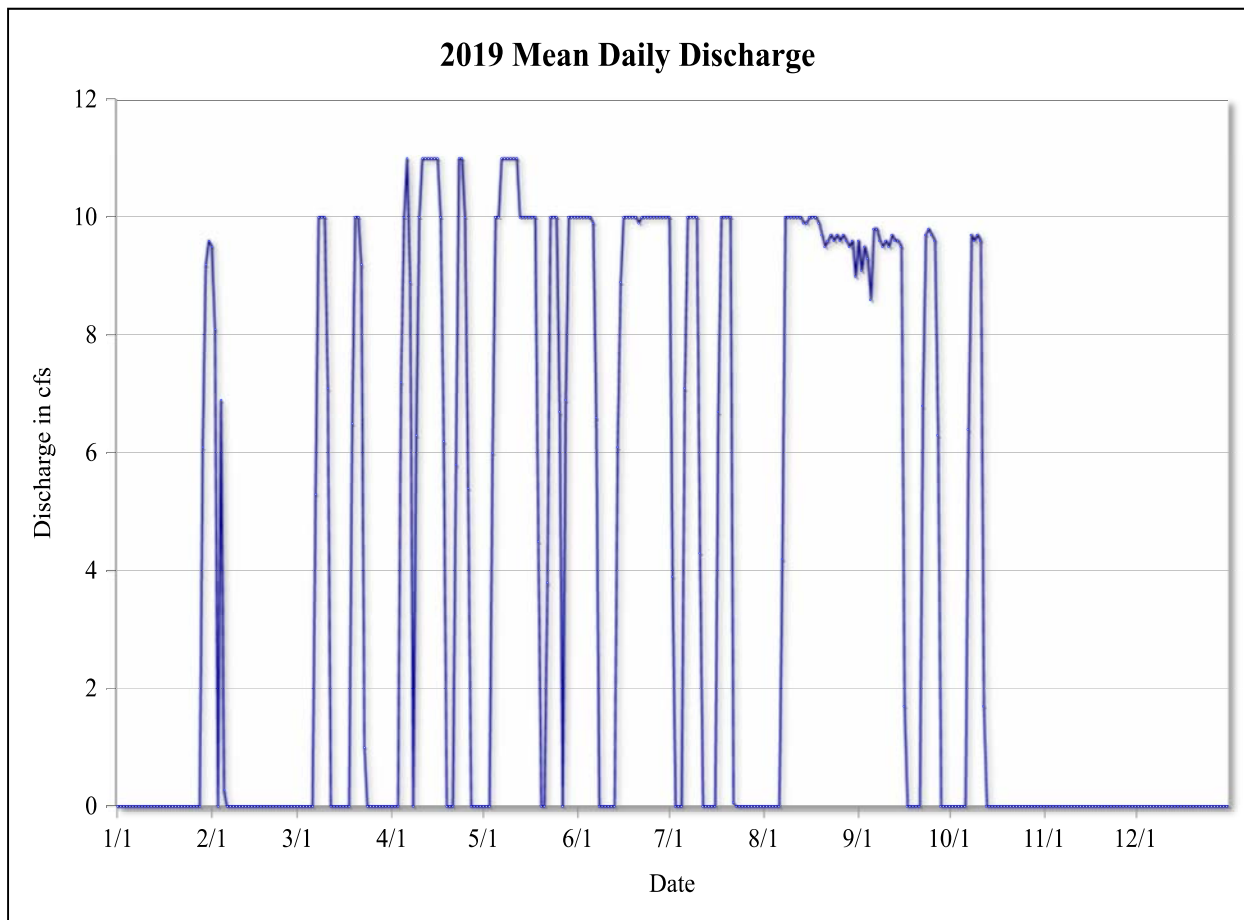
Drainage Area—Not applicable.

Period of Record—January 1, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records discharge values measured with a SeaMetrics insertion magnetic flow meter (Model EX-201-S) mounted in the discharge side of the diversion pipe. Discharge is calculated using a discharge-index relationship.

Extremes—Maximum daily discharge, 15 cfs, Apr. 15, 2008; minimum daily discharge, no diversion at times; maximum hourly discharge, 16 cfs, Feb. 14, 2008 at 13:00; minimum hourly discharge, no diversion at times.

Remarks—The discharge record was estimated for several short duration periods due to equipment failure.



Fort Mojave Tribe-Nevada

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	9.5	0	0	0	10	10	0	9.6	0	0	0
2	0	8.1	0	0	0	10	3.9	0	9.1	0	0	0
3	0	0	0	0	0	10	0	0	9.5	0	0	0
4	0	6.9	0	7.2	6.0	10	0	0	9.3	0	0	0
5	0	0.28	0	10	10	10	0	0	8.6	0	0	0
6	0	0	0	11	10	9.9	7.1	0	9.8	0	0	0
7	0	0	5.3	8.9	11	6.6	10	4.2	9.8	6.4	0	0
8	0	0	10	0	11	0	10	10	9.6	9.7	0	0
9	0	0	10	6.3	11	0	10	10	9.5	9.6	0	0
10	0	0	10	10	11	0	10	10	9.6	9.7	0	0
11	0	0	7.1	11	11	0	4.3	10	9.5	9.6	0	0
12	0	0	0	11	11	0	0	10	9.7	1.7	0	0
13	0	0	0	11	10	0	0	10	9.6	0	0	0
14	0	0	0	11	10	6.1	0	9.9	9.6	0	0	0
15	0	0	0	11	10	8.9	0	9.9	9.5	0	0	0
16	0	0	0	11	10	10	0	10	1.7	0	0	0
17	0	0	0	10	10	10	6.7	10	0	0	0	0
18	0	0	0	6.2	10	10	10	10	0	0	0	0
19	0	0	6.5	0	4.5	10	10	9.9	0	0	0	0
20	0	0	10	0	0	10	10	9.7	0	0	0	0
21	0	0	10	0	0	9.9	10	9.5	0	0	0	0
22	0	0	9.2	5.8	3.8	10	0.07	9.6	6.8	0	0	0
23	0	0	1.0	11	10	10	0	9.7	9.7	0	0	0
24	0	0	0	11	10	10	0	9.6	9.8	0	0	0
25	0	0	0	10	10	10	0	9.7	9.7	0	0	0
26	0	0	0	5.4	6.7	10	0	9.6	9.6	0	0	0
27	0	0	0	0	0	10	0	9.7	6.3	0	0	0
28	0	0	0	0	6.9	10	0	9.6	0	0	0	0
29	6.1		0	0	10	10	0	9.5	0	0	0	0
30	9.2		0	0	10	10	0	9.6	0	0	0	0
31	9.6		0		10		0	9.0		0		0
Total	25.0	24.87	79.7	176.5	236.2	235.7	113.88	239.7	195.9	46.6	0	0
Mean	0.81	0.89	2.57	5.88	7.62	7.86	3.67	7.73	6.53	1.50	0	0
Max	9.6	9.5	10	11	11	10	10	10	9.8	9.7	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	50	49	158	350	468	467	226	475	389	92	0	0

Calendar Year Summary

Annual Total 1,374.01 Annual Mean 3.76 Daily Max 11 Daily Min 0 Annual Ac-ft 2,725

Maximum Discharge

Date	Time	GH	Discharge
Jun. 16	02:00	N/A	11

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	N/A	0

Bold values indicate the daily value was derived from hourly data that contained 6 or more consecutive hours of estimated record.

Fort Mojave Tribe-North Casino

Location—Latitude 35° 01.749', longitude -114° 38.101', in the SE¼ SE¼ of Section 17, T. 19 N., R. 22 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, river mi 259.4, 6.3 mi south of Bullhead City, Arizona, 13.1 mi north of Needles, California, and 16.5 river mi downstream of Davis Dam.

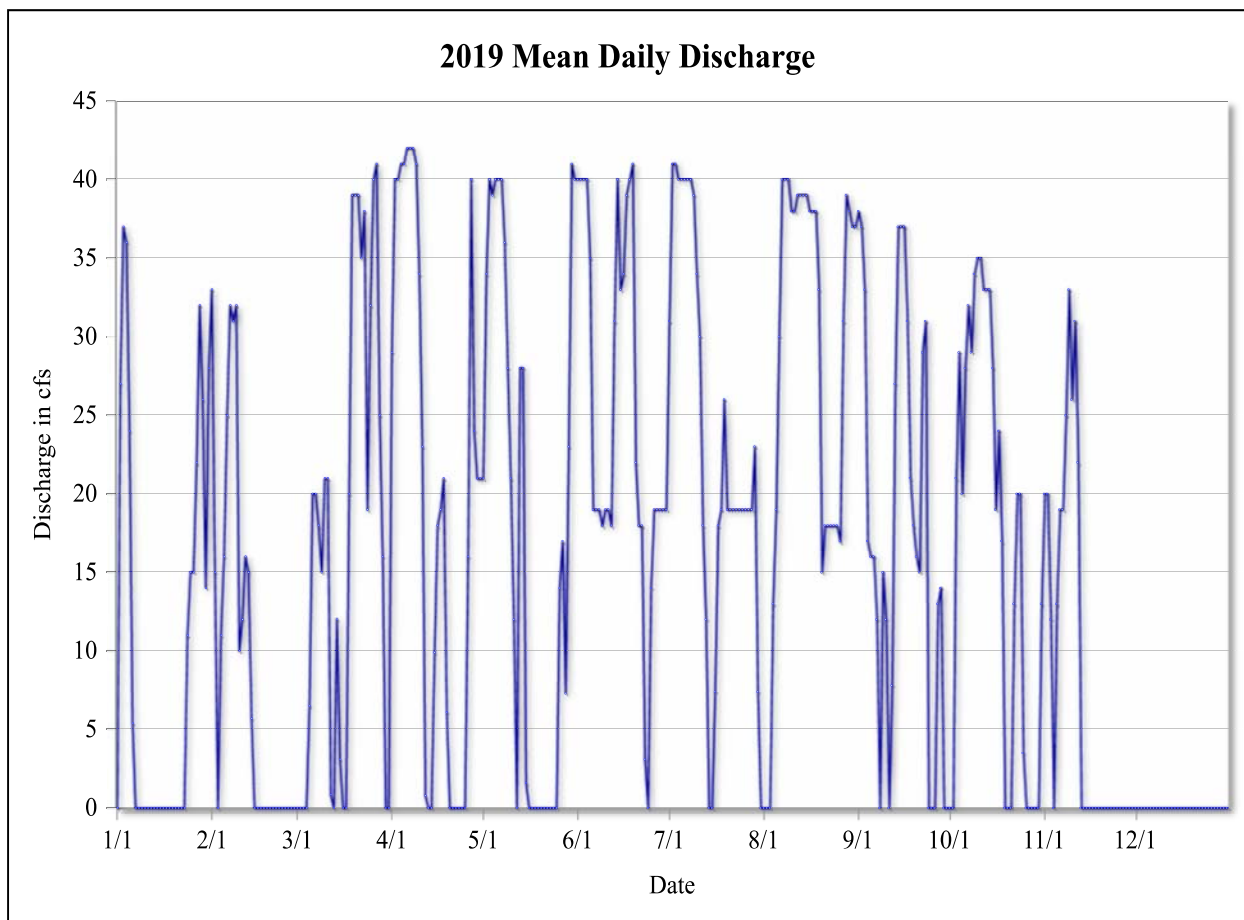
Drainage Area—Not applicable.

Period of Record—February 23, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water stage and velocity measured with a SonTek/YSI Argonaut-SW current meter. Discharge is calculated using a velocity-index relationship.

Extremes—Maximum daily discharge, 48 cfs, Mar. 25, 2014; minimum daily discharge, no diversion at times; maximum hourly discharge, 51 cfs, Apr. 23, 2014 at 18:00; minimum hourly discharge, no diversion at times.

Remarks—The discharge record was estimated from Mar. 6, 2019 at 09:00 to Mar. 7, 2019 at 10:00 due to equipment failure.



Fort Mojave Tribe-North Casino

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	33	0	29	21	40	31	0	38	0	20	0
2	27	15	0	40	34	40	41	0	37	0	20	0
3	37	0	0	40	40	40	41	0	33	21	12	0
4	36	11	0	41	39	40	40	13	17	29	0	0
5	24	16	6.5	41	40	35	40	19	16	20	13	0
6	5.4	25	20	42	40	19	40	30	16	28	19	0
7	0	32	20	42	40	19	40	40	12	32	19	0
8	0	31	18	42	36	19	40	40	0	29	25	0
9	0	32	15	41	28	18	39	40	15	34	33	0
10	0	10	21	34	21	19	34	38	12	35	26	0
11	0	12	21	23	12	19	30	38	0	35	31	0
12	0	16	0.86	0.79	0	18	18	39	7.8	33	22	0
13	0	15	0	0	28	31	12	39	27	33	0	0
14	0	5.7	12	0	28	40	0	39	37	33	0	0
15	0	0	3.1	9.9	1.6	33	0	39	37	28	0	0
16	0	0	0	18	0	34	7.4	38	37	19	0	0
17	0	0	0	19	0	39	18	38	31	24	0	0
18	0	0	20	21	0	40	19	38	21	17	0	0
19	0	0	39	6.1	0	41	26	33	18	0	0	0
20	0	0	39	0	0	22	19	15	16	0	0	0
21	0	0	39	0	0	18	19	18	15	0	0	0
22	0	0	35	0	0	18	19	18	29	13	0	0
23	0	0	38	0	0	3.1	19	18	31	20	0	0
24	11	0	19	0	0	0	19	18	0	20	0	0
25	15	0	32	0	0	14	19	18	0	3.5	0	0
26	15	0	40	16	14	19	19	17	0	0	0	0
27	22	0	41	40	17	19	19	31	13	0	0	0
28	32	0	25	24	7.3	19	19	39	14	0	0	0
29	26		16	21	23	19	23	38	0	0	0	0
30	14		0	21	41	19	7.4	37	0	0	0	0
31	28		0		40		0	37		13		0
Total	293.8	254.6	520.58	611.86	552.0	752.4	717.2	865	529.0	517.5	241	0
Mean	9.48	9.09	16.8	20.4	17.8	25.1	23.1	27.9	17.6	16.7	8.02	0
Max	37	33	41	42	41	41	41	40	38	35	33	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	583	505	1,033	1,214	1,095	1,492	1,423	1,717	1,049	1,027	477	0

Calendar Year Summary

Annual Total 5,855.19 Annual Mean 16.0 Daily Max 42 Daily Min 0 Annual Ac-ft 11,614

Maximum Discharge

Date	Time	GH	Discharge
Aug. 6	23:00	3.01	43

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	0.00	0

Bold values indicate the daily value was derived from hourly data that contained 6 or more consecutive hours of estimated record.

Fort Mojave Tribe-North Casino (North Event Center)

Location—Latitude 35° 01.749', longitude -114° 38.101', in the SE¼ SE¼ of Section 17, T. 19 N., R. 22 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, river mi 259.4, 6.3 mi south of Bullhead City, Arizona, 13.1 mi north of Needles, California, and 16.5 river mi downstream of Davis Dam.

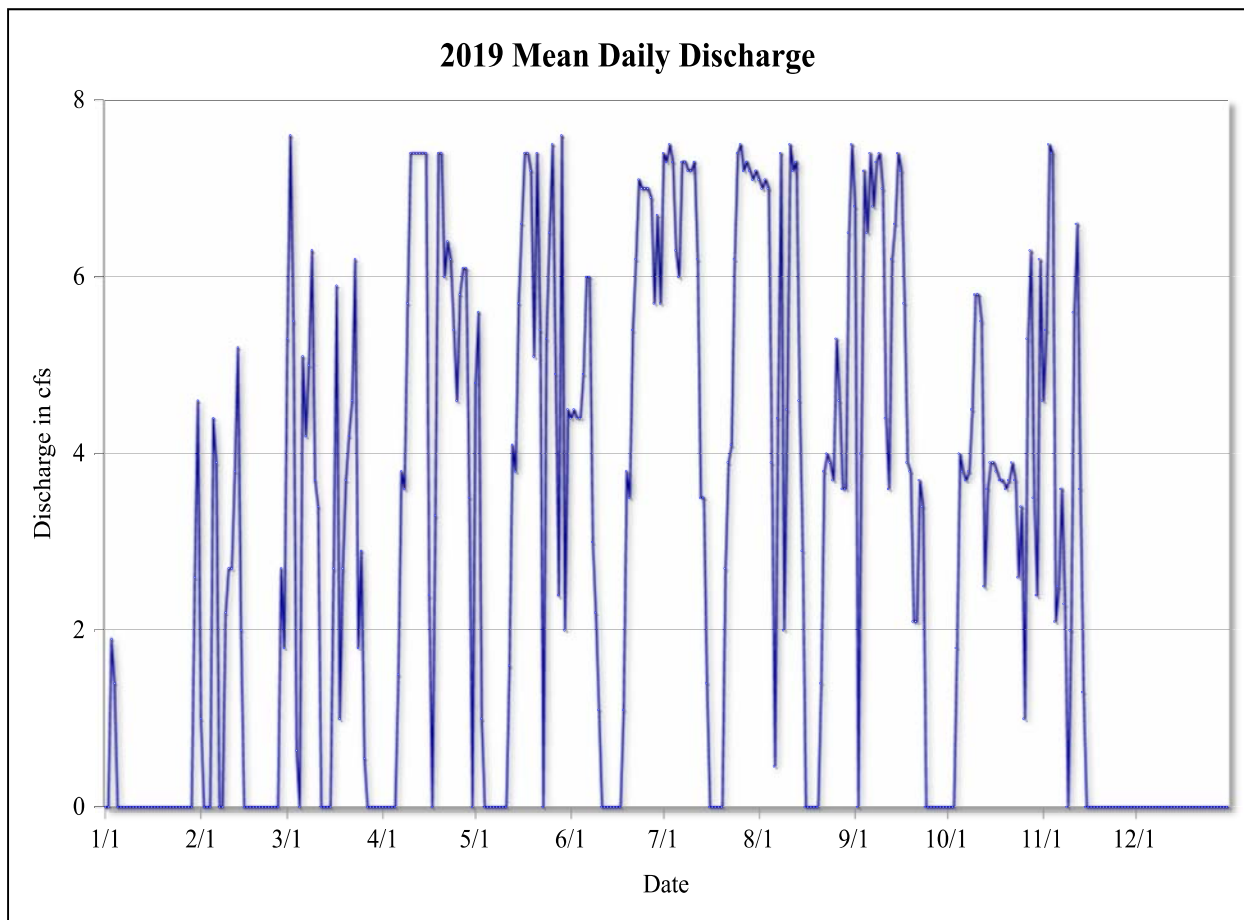
Drainage Area—Not applicable.

Period of Record—September 9, 2011 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records discharge measured with a Mace Series 3 FloPro flow meter mounted in the discharge side of the diversion pipe. Discharge is calculated using a discharge-index relationship.

Extremes—Maximum daily discharge, 7.6 cfs, Oct. 28, 2011; minimum daily discharge, no diversion at times; maximum hourly discharge, 9.8 cfs, Oct. 22, 2011 at 23:00; minimum hourly discharge, no diversion at times.

Remarks—None.



Fort Mojave Tribe North Casino (North Event Center)

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	1.0	5.3	0	4.8	4.4	7.4	7.1	6.8	0	4.6	0
2	0	0	7.6	0	5.6	4.5	7.3	7.0	0	0	5.4	0
3	1.9	0	5.5	0	1.0	4.4	7.5	7.1	4.0	0	7.5	0
4	1.4	0	0.64	0	0	4.4	7.3	7.0	7.2	1.8	7.4	0
5	0	4.4	0	0	0	4.9	6.3	3.9	6.5	4.0	2.1	0
6	0	3.9	5.1	1.5	0	6.0	6.0	0.46	7.4	3.8	2.5	0
7	0	0	4.2	3.8	0	6.0	7.3	4.4	6.8	3.7	3.6	0
8	0	0	5.0	3.6	0	3.0	7.3	7.4	7.3	3.8	2.3	0
9	0	2.2	6.3	5.7	0	2.2	7.2	2.0	7.4	4.5	0	0
10	0	2.7	3.7	7.4	0	1.1	7.2	4.5	7.0	5.8	2.0	0
11	0	2.7	3.4	7.4	0	0	7.3	7.5	4.4	5.8	5.6	0
12	0	3.8	0	7.4	1.6	0	6.2	7.2	3.6	5.5	6.6	0
13	0	5.2	0	7.4	4.1	0	3.5	7.3	6.2	2.5	3.6	0
14	0	2.0	0	7.4	3.8	0	3.5	4.6	6.6	3.6	1.3	0
15	0	0	0	7.4	5.7	0	1.4	2.9	7.4	3.9	0	0
16	0	0	2.7	2.4	6.6	0	0	0	7.2	3.9	0	0
17	0	0	5.9	0	7.4	0	0	0	5.7	3.8	0	0
18	0	0	1.0	3.3	7.4	1.1	0	0	3.9	3.7	0	0
19	0	0	2.7	7.4	7.2	3.8	0	0	3.8	3.7	0	0
20	0	0	3.7	7.4	5.1	3.5	0	0	2.1	3.6	0	0
21	0	0	4.2	6.0	7.4	5.4	2.7	1.4	2.1	3.7	0	0
22	0	0	4.6	6.4	5.4	6.2	3.9	3.8	3.7	3.9	0	0
23	0	0	6.2	6.2	0	7.1	4.1	4.0	3.4	3.7	0	0
24	0	0	1.8	5.4	5.3	7.0	6.2	3.9	0	2.6	0	0
25	0	0	2.9	4.6	6.5	7.0	7.4	3.7	0	3.4	0	0
26	0	0	0.55	5.8	7.5	7.0	7.5	5.3	0	1.0	0	0
27	0	2.7	0	6.1	4.9	6.9	7.2	4.6	0	5.3	0	0
28	0	1.8	0	6.1	2.4	5.7	7.3	3.6	0	6.3	0	0
29	0		0	3.5	7.6	6.7	7.2	3.6	0	3.5	0	0
30	2.6		0	0	2.0	5.7	7.1	6.5	0	2.4	0	0
31	4.6		0		4.5		7.2	7.5		6.2		0
Total	10.5	32.4	82.98	129.6	113.9	114.1	160.5	128.33	120.6	109.5	54.3	0
Mean	0.34	1.16	2.68	4.32	3.67	3.80	5.18	4.14	4.02	3.53	1.81	0
Max	4.6	5.2	7.6	7.4	7.6	7.1	7.5	7.5	7.4	6.3	7.5	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	21	64	165	257	226	226	318	255	239	217	108	0

Calendar Year Summary

Annual Total 1,056.66 Annual Mean 2.89 Daily Max 7.6 Daily Min 0 Annual Ac-ft 2,096

Maximum Discharge

Date	Time	GH	Discharge
Jun. 29	00:00	N/A	9.1

Minimum Discharge

Date	Time	GH	Discharge
Feb. 28	02:00	N/A	-0.12

Fort Mojave Tribe-South Casino

Location—Latitude 34° 59.160', longitude -114° 37.622', in the SE¼ SW¼ of Section 33, T. 19 N., R. 22 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, river mi 256.3, 9.1 mi south of Bullhead City, Arizona, 10.1 mi north of Needles, California, and 19.6 river mi downstream of Davis Dam.

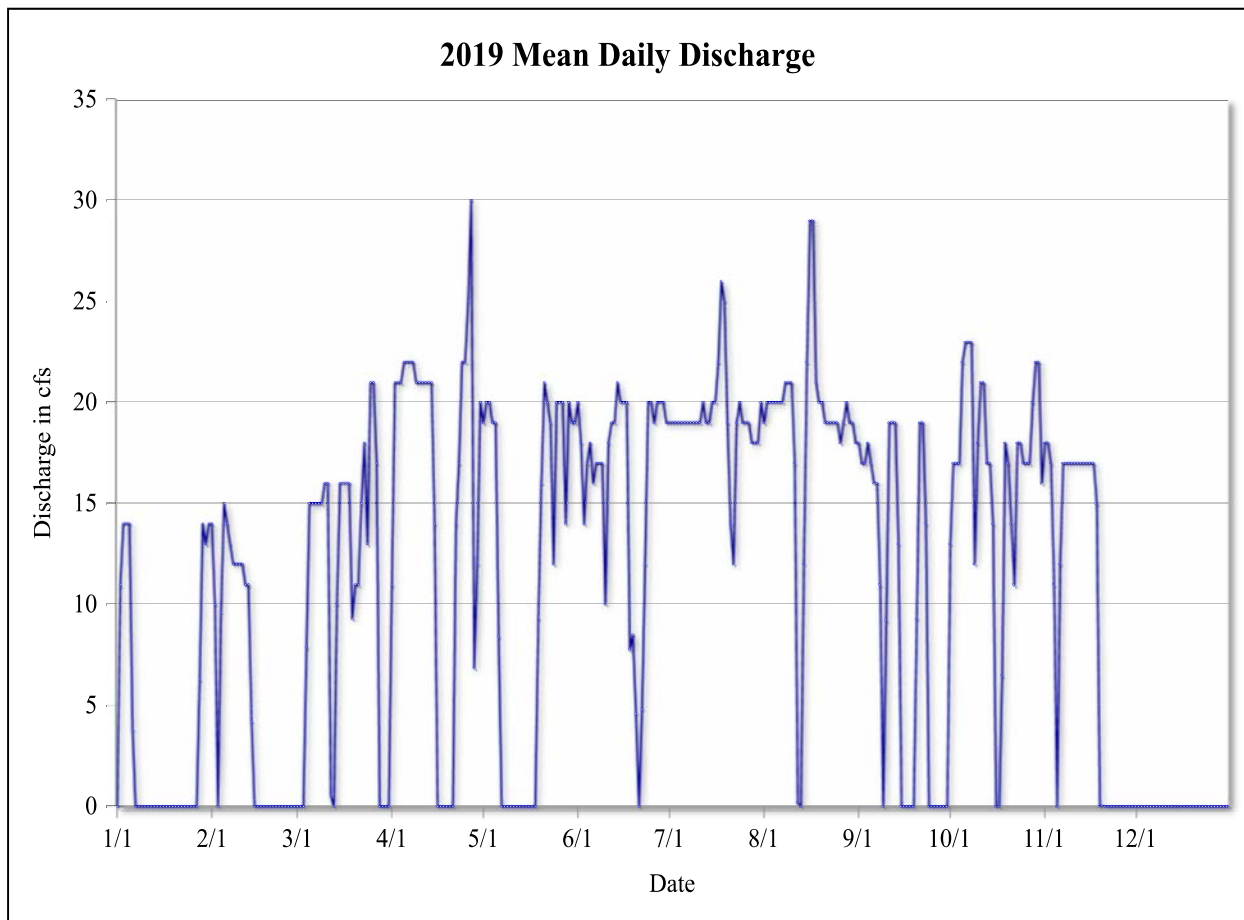
Drainage Area—Not applicable.

Period of Record—April 10, 2006 to current year.

Gage—Sutron Xlite datalogger (Model 9210-0000-2B) records water stage measured with a Sutron AccuBubble self-contained bubbler system (Model 5600-0131-4) upstream of a fixed abrupt-expansion type, long-throated flume. Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 39 cfs, Jul. 26, 2010; minimum daily discharge, no diversion at times; maximum hourly discharge, 41 cfs, Jul. 25, 2010 at 20:00; minimum hourly discharge, no diversion at times.

Remarks—None.



Fort Mojave Tribe-South Casino

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	14	0	11	19	20	19	19	18	13	18	0
2	11	10	0	21	20	18	19	20	17	17	18	0
3	14	0.01	0	21	20	14	19	20	17	17	17	0
4	14	9.6	7.9	21	19	17	19	20	18	17	11	0
5	14	15	15	22	19	18	19	20	17	22	0	0
6	3.8	14	15	22	8.4	16	19	20	16	23	12	0
7	0	13	15	22	0	17	19	20	16	23	17	0
8	0	12	15	22	0	17	19	21	11	23	17	0
9	0	12	15	21	0	17	19	21	0	12	17	0
10	0	12	16	21	0	10	19	21	9.2	18	17	0
11	0	12	16	21	0	18	19	17	19	21	17	0
12	0	11	0.59	21	0	19	20	0.21	19	21	17	0
13	0	11	0	21	0	19	19	0	19	17	17	0
14	0	4.2	10	21	0	21	19	12	13	17	17	0
15	0	0	16	14	0	20	20	22	0	14	17	0
16	0	0	16	0	0	20	20	29	0	0	17	0
17	0	0	16	0	0	20	22	29	0	0	17	0
18	0	0	16	0	0	7.8	26	21	0	6.5	15	0
19	0	0	9.3	0	9.3	8.5	25	20	0	18	0.01	0
20	0	0	11	0	16	4.6	19	20	9.3	17	0.05	0
21	0	0	11	0	21	0	14	19	19	14	0	0
22	0	0	15	14	20	4.8	12	19	19	11	0	0
23	0	0	18	17	19	12	19	19	14	18	0	0
24	0	0	13	22	12	20	20	19	0	18	0	0
25	0	0	21	22	20	20	19	19	0	17	0	0
26	0	0	21	25	20	19	19	18	0	17	0	0
27	0	0	17	30	20	20	19	19	0	17	0	0
28	6.3	0	0	6.9	14	20	18	20	0	20	0	0
29	14		0	12	20	20	18	19	0	22	0	0
30	13		0	20	19	19	18	19	0	22	0	0
31	14		0		19		20	18		16		0
Total	104.5	150.76	328.35	469.0	335.5	475.0	598	581.95	270.9	507.6	278.31	0
Mean	3.37	5.38	10.6	15.6	10.8	15.8	19.3	18.8	9.03	16.4	9.28	0
Max	14	15	21	30	21	21	26	29	19	23	18	0
Min	0	0	0	0	0	0	12	0	0	0	0	0
Ac-ft	207	299	651	930	665	942	1,186	1,154	537	1,007	552	0

Calendar Year Summary

Annual Total 4,099.83 Annual Mean 11.2 Daily Max 30 Daily Min 0 Annual Ac-ft 8,132

Maximum Discharge

Date	Time	GH	Discharge
Aug. 15	23:00	1.33	33

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	0.00	0

Fort Mojave Tribe-California 2 (North)

Location—Latitude 34° 58.022', longitude -114° 38.173', in the NE¼ NW¼ of Section 13, T. 10 N., R. 22 E., San Bernardino meridian, San Bernardino County, California, Hydrologic Unit 15030101, river mi 254.9, 10.4 mi south of Bullhead City, Arizona, 8.9 mi north of Needles, California, and 21.0 river mi downstream of Davis Dam.

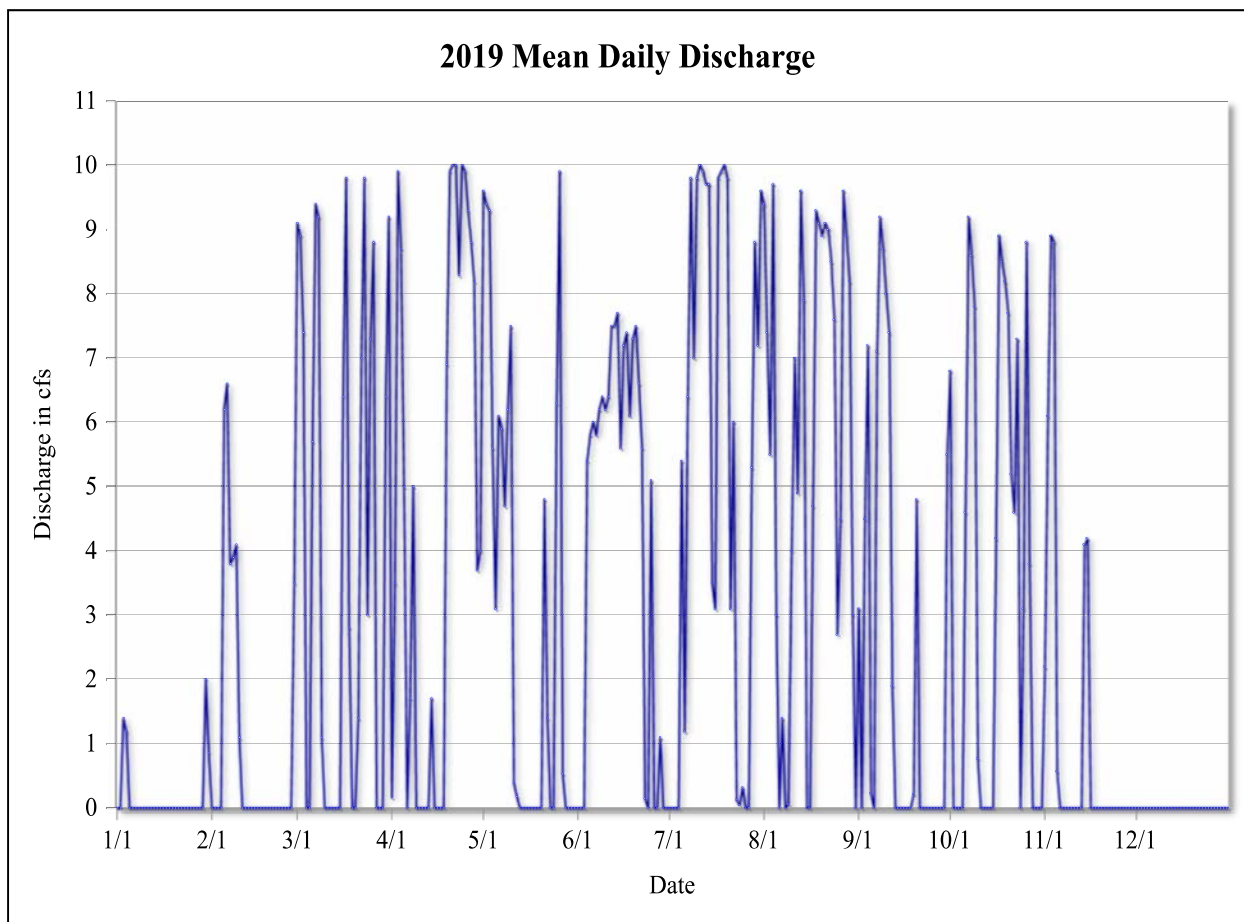
Drainage Area—Not applicable.

Period of Record—January 1, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records discharge measured using a Mace Series3 FloPro flow meter mounted in the discharge side of the diversion pipe. Discharge is calculated using a discharge-index relationship.

Extremes—Maximum daily discharge, 14 cfs, Apr. 27, 2007; minimum daily discharge, no diversion at times; maximum hourly discharge, 26 cfs, Sep. 21, 2006 at 08:00; minimum hourly discharge, no diversion at times.

Remarks—None.



Fort Mojave Tribe-California 2 (North)

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	0	9.1	0.17	9.6	0	0	9.4	3.1	6.8	2.2	0
2	0	0	8.9	3.5	9.4	0	0	7.4	0	0	6.1	0
3	1.4	0	7.4	9.9	9.3	0	0	5.5	4.5	0	8.9	0
4	1.2	0	0	8.7	5.6	5.4	0	9.7	7.2	0	8.8	0
5	0	6.2	0	5.0	3.1	5.8	5.4	3.0	0.23	0	0.57	0
6	0	6.6	5.7	0	6.1	6.0	1.2	0	0	4.6	0	0
7	0	3.8	9.4	1.7	5.9	5.8	6.4	1.4	7.1	9.2	0	0
8	0	3.9	9.2	5.0	4.7	6.2	9.8	0	9.2	8.6	0	0
9	0	4.1	1.1	0	6.2	6.4	7.0	0.06	8.7	7.8	0	0
10	0	1.1	0	0	7.5	6.2	9.8	4.0	8.0	0.77	0	0
11	0	0	0	0	0.39	6.4	10	7.0	7.4	0	0	0
12	0	0	0	0	0.18	7.5	9.9	4.9	1.9	0	0	0
13	0	0	0	0	0	7.5	9.7	9.6	0	0	0	0
14	0	0	0	1.7	0	7.7	9.7	7.9	0	0	4.1	0
15	0	0	0	0	0	5.6	3.5	0	0	0	4.2	0
16	0	0	6.4	0	0	7.2	3.1	0	0	4.2	0	0
17	0	0	9.8	0	0	7.4	9.8	4.7	0	8.9	0	0
18	0	0	2.8	0	0	6.1	9.9	9.3	0	8.5	0	0
19	0	0	0	6.9	0	7.3	10	9.1	0.22	8.2	0	0
20	0	0	0	9.9	0	7.5	9.8	8.9	4.8	7.7	0	0
21	0	0	1.4	10	4.8	6.6	3.1	9.1	0	5.2	0	0
22	0	0	7.0	10	1.4	5.6	6.0	9.0	0	4.6	0	0
23	0	0	9.8	8.3	0	0.15	0.13	8.5	0	7.3	0	0
24	0	0	3.0	10	0	0	0.05	7.6	0	0	0	0
25	0	0	7.3	9.9	6.3	5.1	0.32	2.7	0	3.1	0	0
26	0	0	8.8	9.3	9.9	0	0	4.5	0	8.8	0	0
27	0	0	0	8.8	0.53	0	0	9.6	0	3.8	0	0
28	0	3.5	0	8.2	0	1.1	5.3	8.9	0	0	0	0
29	0	0	0	3.7	0	0	8.8	8.2	0	0	0	0
30	2.0	0	6.4	4.0	0	0	7.2	3.0	5.5	0	0	0
31	0.86	0	9.2	0	0	0	9.6	0	0	0	0	0
Total	5.37	29.2	122.6	135.06	90.95	130.61	165.47	172.90	67.90	108.27	35.00	0
Mean	0.17	1.04	3.96	4.50	2.93	4.35	5.34	5.58	2.26	3.49	1.17	0
Max	2.0	6.6	9.8	10	9.9	7.7	10	9.7	9.2	9.2	8.9	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	11	58	243	268	180	259	328	343	135	215	69	0

Calendar Year Summary

Annual Total 1,063.33 Annual Mean 2.91 Daily Max 10 Daily Min 0 Annual Ac-ft 2,109

Maximum Discharge

Date	Time	GH	Discharge
Apr. 22	00:00	N/A	11

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	N/A	0

Fort Mojave Tribe-California 2 (South)

Location—Latitude 34° 58.022', longitude -114° 38.173', in the NE¼ NW¼ of Section 13, T. 10 N., R. 22 E., San Bernardino meridian, San Bernardino County, California, Hydrologic Unit 15030101, river mi 254.9, 10.4 mi south of Bullhead City, Arizona, 8.9 mi north of Needles, California, and 21.0 river mi downstream of Davis Dam.

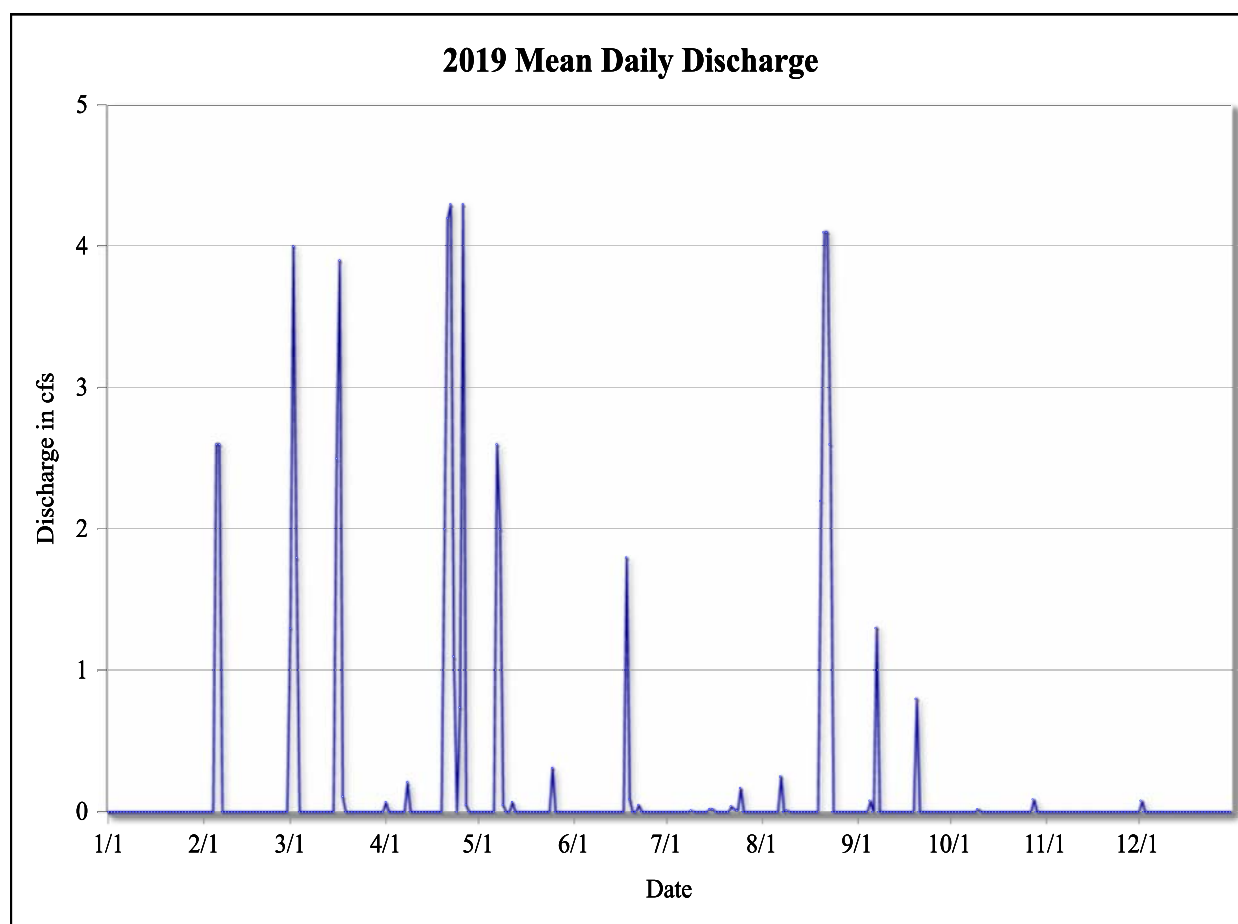
Drainage Area—Not applicable.

Period of Record—January 1, 2006 to current year.

Gage—Sutron Xlite datalogger (Model 9210-0000-2B) records discharge measured with a Mace Series 3 FloPro flow meter mounted in the discharge side of the diversion pipe. Discharge is calculated using a discharge-index relationship.

Extremes—Maximum daily discharge, 5.8 cfs, May 30, 2012; minimum daily discharge, no diversion at times; maximum hourly discharge, 13 cfs, May 26, 2006 at 05:00; minimum hourly discharge, no diversion at times.

Remarks—None.



Fort Mojave Tribe California 2 (South)

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	0	1.3	0.07	0	0	0	0	0	0	0	0
2	0	0	4.0	0	0	0	0	0	0	0	0	0.08
3	0	0	1.8	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	2.6	0	0	0	0	0	0	0.08	0	0	0
6	0	2.6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	2.6	0	0	0.25	1.3	0	0	0
8	0	0	0	0.21	2.0	0	0	0	0	0	0	0
9	0	0	0	0	0.05	0	0.01	0.01	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0.02	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0.07	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0.02	0	0	0	0	0
16	0	0	2.5	0	0	0	0.02	0	0	0	0	0
17	0	0	3.9	0	0	0	0	0	0	0	0	0
18	0	0	0.11	0	0	1.8	0	0	0	0	0	0
19	0	0	0	0	0	0.09	0	0	0	0	0	0
20	0	0	0	2.0	0	0	0	2.2	0.80	0	0	0
21	0	0	0	4.2	0	0	0	4.1	0	0	0	0
22	0	0	0	4.3	0	0.05	0.04	4.1	0	0	0	0
23	0	0	0	1.1	0	0	0.02	2.6	0	0	0	0
24	0	0	0	0	0	0	0.01	0	0	0	0	0
25	0	0	0	0.74	0.31	0	0.17	0	0	0	0	0
26	0	0	0	4.3	0	0	0	0	0	0	0	0
27	0	0	0	0.05	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0.09	0	0
29	0		0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Total	0	5.2	13.60	16.97	5.08	1.90	0.29	13.28	2.15	0.11	0	0.08
Mean	0	0.18	0.44	0.57	0.16	0.063	0.009	0.43	0.072	0.004	0	0.002
Max	0	2.6	4.0	4.3	2.6	1.8	0.17	4.1	1.3	0.09	0	0.08
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	10	27	34	10	3.8	0.6	26	4.3	0.2	0	0.1

Calendar Year Summary

Annual Total 58.61 Annual Mean 0.16 Daily Max 4.3 Daily Min 0 Annual Ac-ft 116

Maximum Discharge

Date	Time	GH	Discharge
Aug. 21	00:00	N/A	4.9

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	N/A	0

Fort Mojave Tribe-California 2 (West)

Location—Latitude 34° 58.022', longitude -114° 38.173', in the NE¼ NW¼ of Section 13, T. 10 N., R. 22 E., San Bernardino meridian, San Bernardino County, California, Hydrologic Unit 15030101, river mi 254.9, 10.4 mi south of Bullhead City, Arizona, 8.9 mi north of Needles, California, and 21.0 river mi downstream of Davis Dam.

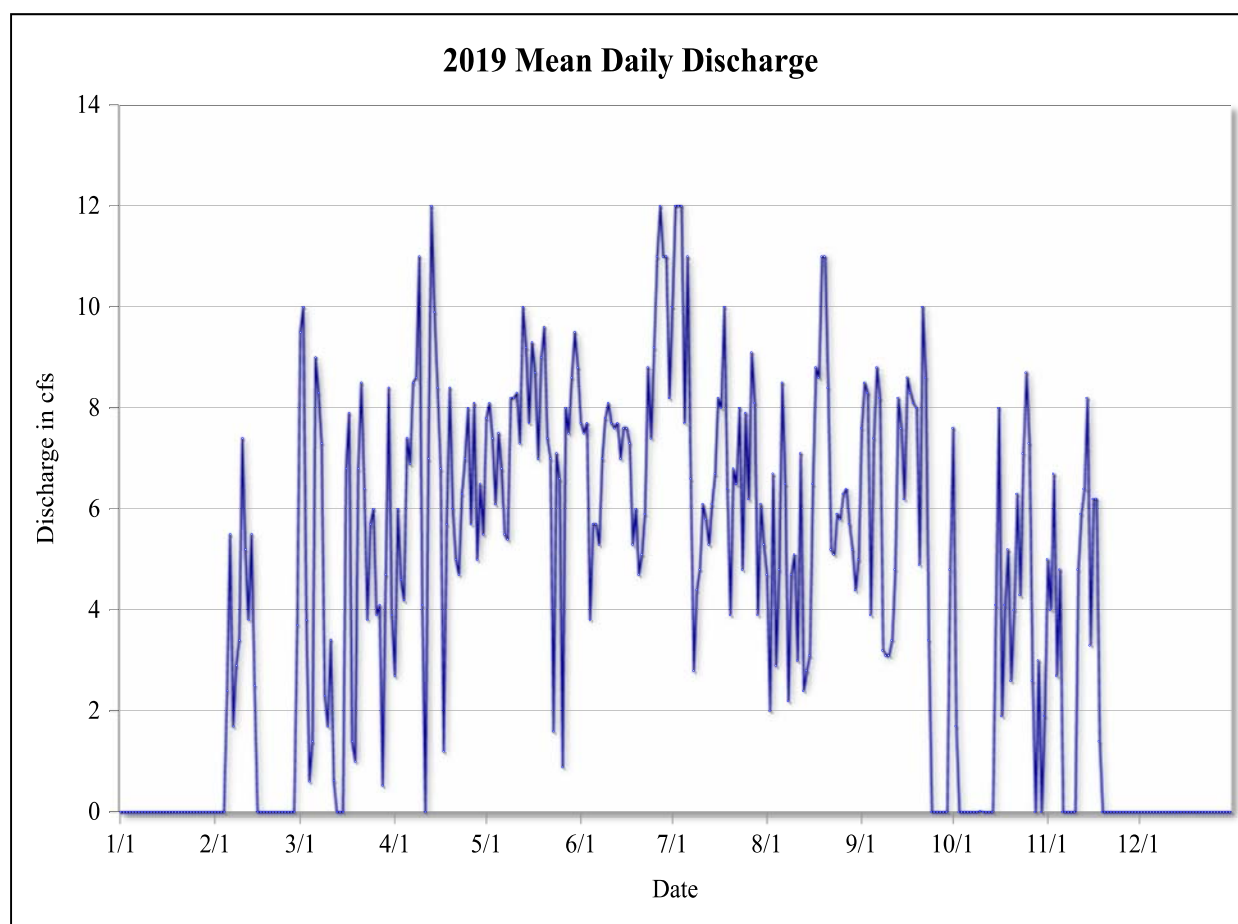
Drainage Area—Not applicable.

Period of Record—January 1, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records discharge measured using a Mace Series3 FloPro flow meter mounted in the discharge side of the diversion pipe. Discharge is calculated using a discharge-index relationship.

Extremes—Maximum daily discharge, 13 cfs, Jul. 12, 2008; minimum daily discharge, no diversion at times; maximum hourly discharge, 20 cfs, Sep. 20, 2006 at 13:00; minimum hourly discharge, no diversion at times.

Remarks—None.



Fort Mojave Tribe California 2 (West)

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	0	9.5	2.7	7.8	7.7	10	4.7	7.6	7.6	5.0	0
2	0	0	10	6.0	8.1	7.5	12	2.0	8.5	1.7	4.0	0
3	0	0	3.8	4.6	7.4	7.7	12	6.7	8.3	0	6.7	0
4	0	0	0.61	4.2	6.1	3.8	12	2.9	3.9	0	2.7	0
5	0	2.4	1.4	7.4	7.5	5.7	7.7	4.8	7.4	0	4.8	0
6	0	5.5	9.0	6.9	6.8	5.7	11	8.5	8.8	0	0	0
7	0	1.7	8.3	8.5	5.5	5.3	6.6	6.5	8.2	0	0	0
8	0	2.9	7.3	8.6	5.4	7.0	2.8	2.2	3.2	0	0	0
9	0	3.4	2.3	11	8.2	7.8	4.4	4.7	3.1	0	0	0
10	0	7.4	1.7	4.1	8.2	8.1	4.8	5.1	3.1	0.02	0	0
11	0	5.2	3.4	0	8.3	7.7	6.1	3.0	3.4	0	4.8	0
12	0	3.8	0.62	7.0	7.3	7.6	5.8	7.1	4.8	0	5.9	0
13	0	5.5	0	12	10	7.7	5.3	2.4	8.2	0	6.4	0
14	0	2.5	0	9.9	9.2	7.0	6.1	2.8	7.6	0	8.2	0
15	0	0	0	8.4	7.7	7.6	6.7	3.1	6.2	4.1	3.3	0
16	0	0	6.8	6.8	9.3	7.6	8.2	6.5	8.6	8.0	6.2	0
17	0	0	7.9	1.2	8.7	7.3	8.0	8.8	8.3	1.9	6.2	0
18	0	0	1.4	5.7	7.0	5.3	10	8.6	8.1	4.1	1.4	0
19	0	0	1.0	8.4	9.0	6.0	6.4	11	8.0	5.2	0	0
20	0	0	6.8	6.0	9.6	4.7	3.9	11	4.9	2.6	0	0
21	0	0	8.5	5.0	7.4	5.1	6.8	8.4	10	4.0	0	0
22	0	0	6.4	4.7	7.0	5.9	6.5	5.2	8.6	6.3	0	0
23	0	0	3.8	6.3	1.6	8.8	8.0	5.1	3.4	4.3	0	0
24	0	0	5.7	7.0	7.1	7.4	4.8	5.9	0	7.1	0	0
25	0	0	6.0	8.0	6.6	9.2	7.9	5.8	0	8.7	0	0
26	0	0	3.9	5.7	0.89	11	6.2	6.3	0	7.3	0	0
27	0	0	4.1	8.1	8.0	12	9.1	6.4	0	2.6	0	0
28	0	3.7	0.53	5.0	7.5	11	8.1	5.7	0	0	0	0
29	0		4.7	6.5	8.6	11	3.9	5.2	0	3.0	0	0
30	0		8.4	5.5	9.5	8.2	6.1	4.4	4.8	0	0	0
31	0		3.9		8.8		5.3	5.0		1.9		0
Total	0	43.9	138.13	190.8	230.08	224.8	222.6	175.9	157.1	80.24	65.5	0
Mean	0	1.57	4.46	6.36	7.42	7.49	7.18	5.67	5.24	2.59	2.18	0
Max	0	7.4	10	12	10	12	12	11	10	8.7	8.2	0
Min	0	0	0	0	0.89	3.8	2.8	2.0	0	0	0	0
Ac-ft	0	87	274	378	456	446	441	349	312	159	130	0

Calendar Year Summary

Annual Total 1,529.09 Annual Mean 4.19 Daily Max 12 Daily Min 0 Annual Ac-ft 3,033

Maximum Discharge

Date	Time	GH	Discharge
Jun. 28	00:00	N/A	14

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	N/A	0

Fort Mojave Tribe-California 1

Location—Latitude 34° 57.171', longitude -114° 38.037', in the NW¼ NE¼ of Section 24, T. 10 N., R. 22 E., San Bernardino meridian, San Bernardino County, California, Hydrologic Unit 15030101, river mi 253.9, 11.4 mi south of Bullhead City, Arizona, 7.9 mi north of Needles, California, and 22.0 river mi downstream of Davis Dam.

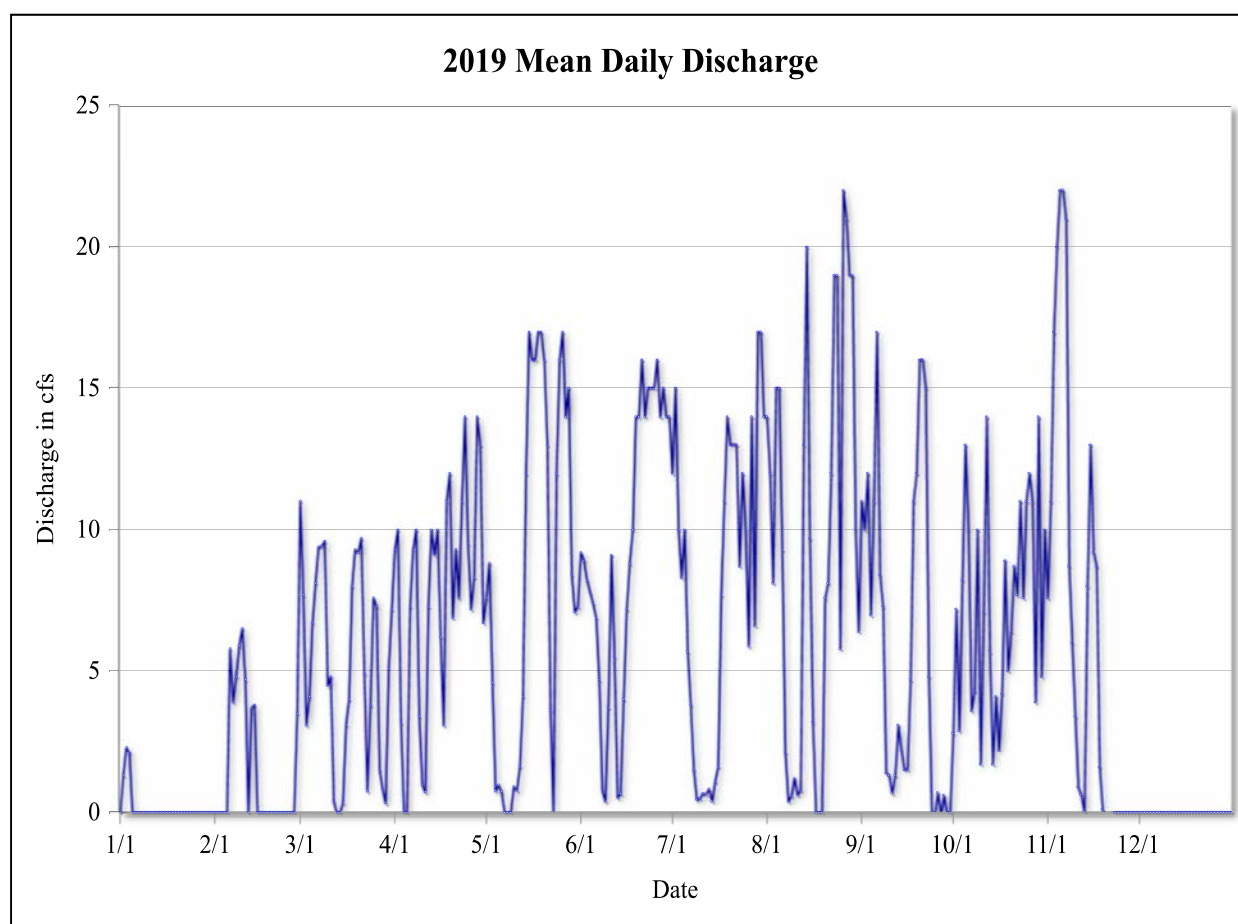
Drainage Area—Not applicable.

Period of Record—January 1, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water stage and velocity measured with a SonTek/YSI Argonaut-IQ Plus current meter. Discharge is calculated using a velocity-index relationship.

Extremes—Maximum daily discharge, 58 cfs, Jun. 12, 2007; minimum daily discharge, -0.13 cfs, Nov. 20, 2019; maximum hourly discharge, 64 cfs, Jun. 30, 2007 at 20:00; minimum hourly discharge, -1.9 cfs, Mar. 28, 2019 at 06:00.

Remarks—The discharge record was estimated from Aug. 16, 2019 at 10:00 to Aug. 20, 2019 at 09:00 and Oct. 3, 2019 at 11:00 to Oct. 4, 2019 at 10:00 due to equipment failure.



Fort Mojave Tribe-California 1

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	0	11	9.3	7.6	9.2	12	14	11	2.8	7.6	0
2	1.3	0	7.7	10	8.8	8.9	15	12	10	7.2	11	0
3	2.3	0	3.1	3.2	4.6	8.2	10	8.1	12	2.9	17	0
4	2.1	0	4.1	0	0.78	7.8	8.3	15	7.0	8.2	20	0
5	0	0	6.7	0	0.98	7.4	10	15	11	13	22	0
6	0	5.8	8.1	7.3	0.74	6.9	5.7	9.3	17	10	22	0
7	0	3.9	9.4	9.3	0	4.7	3.8	2.1	8.4	3.6	21	0
8	0	4.8	9.4	10	0	0.80	1.5	0.41	7.3	4.3	8.7	0
9	0	5.9	9.6	3.4	0	0.41	0.47	0.60	1.4	10	6.0	0
10	0	6.5	4.5	1.0	0.92	3.7	0.51	1.2	1.3	1.7	3.4	0
11	0	4.7	4.8	0.74	0.79	9.1	0.68	0.64	0.70	7.1	0.90	0
12	0	0	0.41	7.3	1.6	5.5	0.66	0.80	1.3	14	0.63	0
13	0	3.7	0	10	4.1	0.54	0.84	13	3.1	5.7	0.03	0
14	0	3.8	0	9.1	12	0.67	0.42	20	2.2	1.7	8.0	0
15	0	0	0.36	10	17	4.0	1.1	9.7	1.5	4.1	13	0
16	0	0	3.1	6.2	16	7.2	1.6	3.2	1.5	2.2	9.2	0
17	0	0	4.0	3.1	16	8.8	7.7	0	4.7	4.2	8.7	0
18	0	0	8.0	11	17	10	11	0	11	8.9	1.6	0
19	0	0	9.3	12	17	14	14	0	12	5.0	0.11	0
20	0	0	9.2	6.9	16	14	13	7.6	16	6.4	-0.13	0
21	0	0	9.7	9.3	13	16	13	8.1	16	8.7	-0.08	0
22	0	0	4.9	7.6	3.6	14	13	12	15	7.7	-0.05	0
23	0	0	0.77	11	-0.02	15	8.7	19	4.8	11	0	0
24	0	0	3.8	14	12	15	12	19	-0.05	7.6	0	0
25	0	0	7.6	9.5	16	15	10	5.8	-0.04	11	0	0
26	0	0	7.3	7.2	17	16	5.9	22	0.71	12	0	0
27	0	0	1.5	8.3	14	14	14	21	-0.07	11	0	0
28	0	3.5	0.83	14	15	15	6.6	19	0.62	3.9	0	0
29	0		0.35	13	8.4	14	17	19	-0.05	14	0	0
30	0		5.1	6.7	7.1	14	17	10	0	4.8	0	0
31	0		7.2		7.3		14	6.4		10		0
Total	5.7	42.6	161.69	232.33	256.63	282.16	249.42	294.73	177.90	226.2	178.33	0
Mean	0.18	1.52	5.22	7.74	8.28	9.41	8.05	9.51	5.93	7.30	5.94	0
Max	2.3	6.5	11	14	17	16	17	22	17	14	22	0
Min	0	0	0	0	-0.02	0.41	0.42	0	-0.07	1.7	-0.13	0
Ac-ft	11	84	321	461	509	560	495	585	353	449	354	0

Calendar Year Summary

Annual Total 2,107.60 Annual Mean 5.77 Daily Max 22 Daily Min -0.13 Annual Ac-ft 4,180

Maximum Discharge

Date	Time	GH	Discharge
Aug. 26	23:00	2.67	38

Minimum Discharge

Date	Time	GH	Discharge
Mar. 28	06:00	0.94	-1.9

Bold values indicate the daily value was derived from hourly data that contained 6 or more consecutive hours of estimated record.

Fort Mojave Tribe-Cimmaron

Location—Latitude 34° 56.347', longitude -114° 37.699', in the SE¼ SW¼ of Section 16, T. 18 N., R. 22 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, river mi 252.9, 12.3 mi south of Bullhead City, Arizona, 6.9 mi north of Needles, California, and 23.0 river mi downstream of Davis Dam.

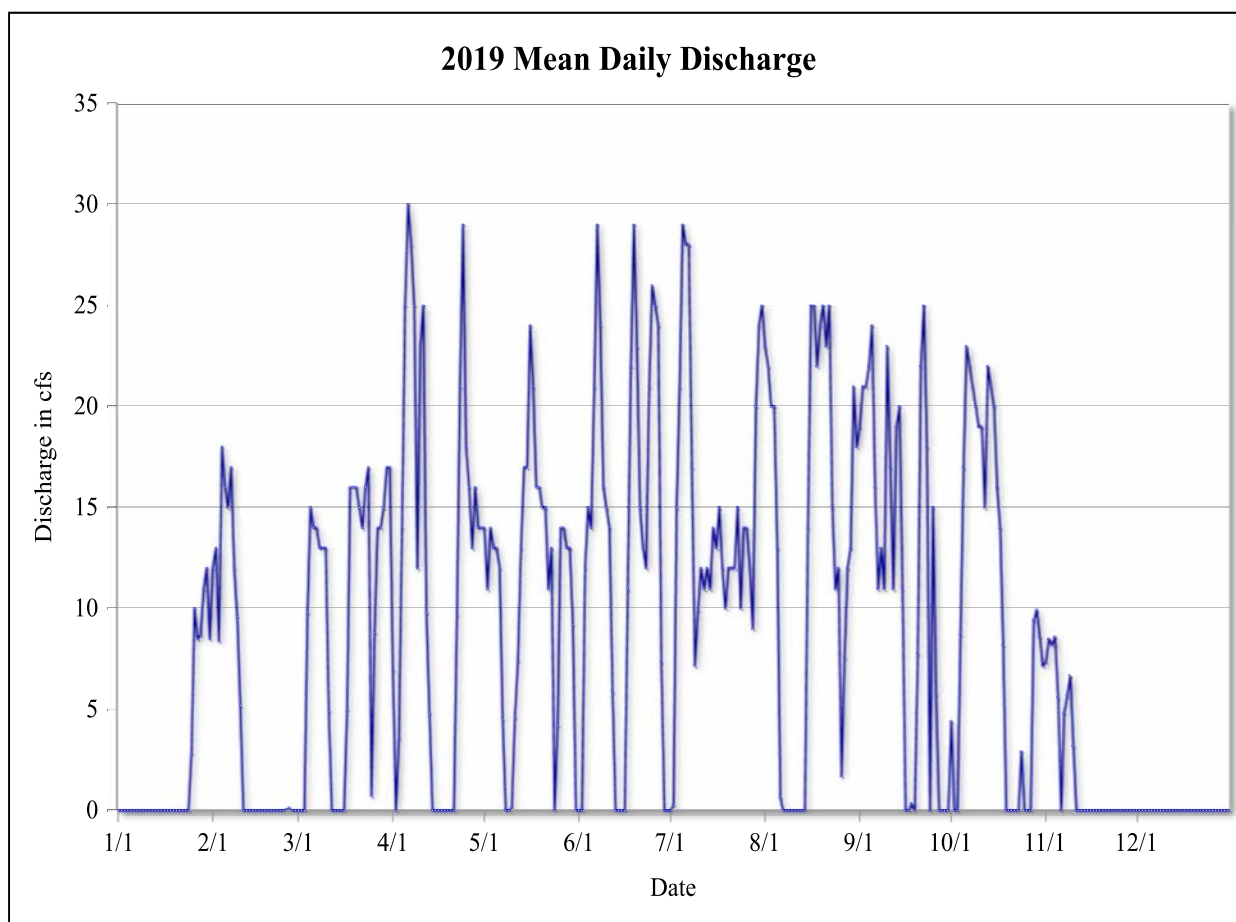
Drainage Area—Not applicable.

Period of Record—April 10, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water stage measured with a Sutron AccuBubble self-contained bubbler system (Model 5600-0131-4) upstream of a fixed abrupt-expansion type, long-throated flume. Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 41 cfs, Jun. 15, 2007; minimum daily discharge, no diversion at times; maximum hourly discharge, 52 cfs, Jun. 12, 2007 at 17:00; minimum hourly discharge, no diversion at times.

Remarks—None.



Fort Mojave Tribe-Cimmaron

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	12	0	7.0	14	0	0	23	19	4.4	7.4	0
2	0	13	0	0	11	0	0.32	22	21	0	8.5	0
3	0	8.4	0	3.6	14	12	15	20	21	0	8.2	0
4	0	18	9.8	14	13	15	21	20	22	8.7	8.6	0
5	0	16	15	25	13	14	29	13	24	17	5.6	0
6	0	15	14	30	12	21	28	0.68	16	23	0	0
7	0	17	14	28	4.5	29	28	0	11	22	4.8	0
8	0	12	13	25	0	24	17	0	13	21	5.7	0
9	0	9.6	13	12	0	16	7.2	0	11	20	6.7	0
10	0	5.2	13	23	0.18	15	9.9	0	23	19	3.2	0
11	0	0	4.9	25	4.6	14	12	0	17	19	0	0
12	0	0	0	9.8	7.5	5.9	11	0	11	15	0	0
13	0	0.01	0	4.8	13	0	12	0	19	22	0	0
14	0	0	0	0	17	0	11	0	20	21	0	0
15	0	0	0	0	17	0	14	14	11	20	0	0
16	0	0	0	0	24	0	13	25	0	16	0	0
17	0	0	5.0	0	21	11	15	25	0	14	0	0
18	0	0	16	0	16	22	12	22	0.37	8.2	0	0
19	0	0	16	0	16	29	10	24	0	0	0	0
20	0	0	16	0	15	23	12	25	7.8	0	0	0
21	0	0	15	0	15	15	12	23	22	0	0	0
22	0	0	14	9.7	11	13	12	25	25	0	0	0
23	0	0	16	21	13	12	15	15	18	0	0	0
24	0	0	17	29	0	21	10	11	0	2.9	0	0
25	2.8	0.07	0.76	18	4.2	26	14	12	15	0	0	0
26	10	0.15	8.8	16	14	25	14	1.7	5.8	0	0	0
27	8.5	0	14	13	14	24	12	7.6	0	0	0	0
28	8.7	0	14	16	13	7.4	9.0	12	0	9.4	0	0
29	11		15	14	13	0	20	13	0	9.9	0	0
30	12		17	14	9.2	0	24	21	0	8.6	0	0
31	8.5		17		0		25	18		7.2		0
Total	61.7	127.25	298.48	359.3	337.52	394.7	443.35	393.13	350.69	309.2	58.7	0
Mean	1.99	4.54	9.63	12.0	10.9	13.2	14.3	12.7	11.7	9.97	1.96	0
Max	12	18	17	30	24	29	29	25	25	23	8.6	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	122	252	592	713	669	783	879	780	696	613	116	0

Calendar Year Summary

Annual Total 3,134.00 Annual Mean 8.59 Daily Max 30 Daily Min 0 Annual Ac-ft 6,216

Maximum Discharge

Date	Time	GH	Discharge
Jul. 29	23:00	0.90	33

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	0.00	0

Fort Mojave Tribe-Willow

Location—Latitude 34° 54.572', longitude -114° 37.733', in the SW¼ SW¼ of Section 28, T. 18 N., R. 22 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, river mi 250.8, 14.3 mi south of Bullhead City, Arizona, 4.9 mi north of Needles, California, and 25.1 mi downstream of Davis Dam.

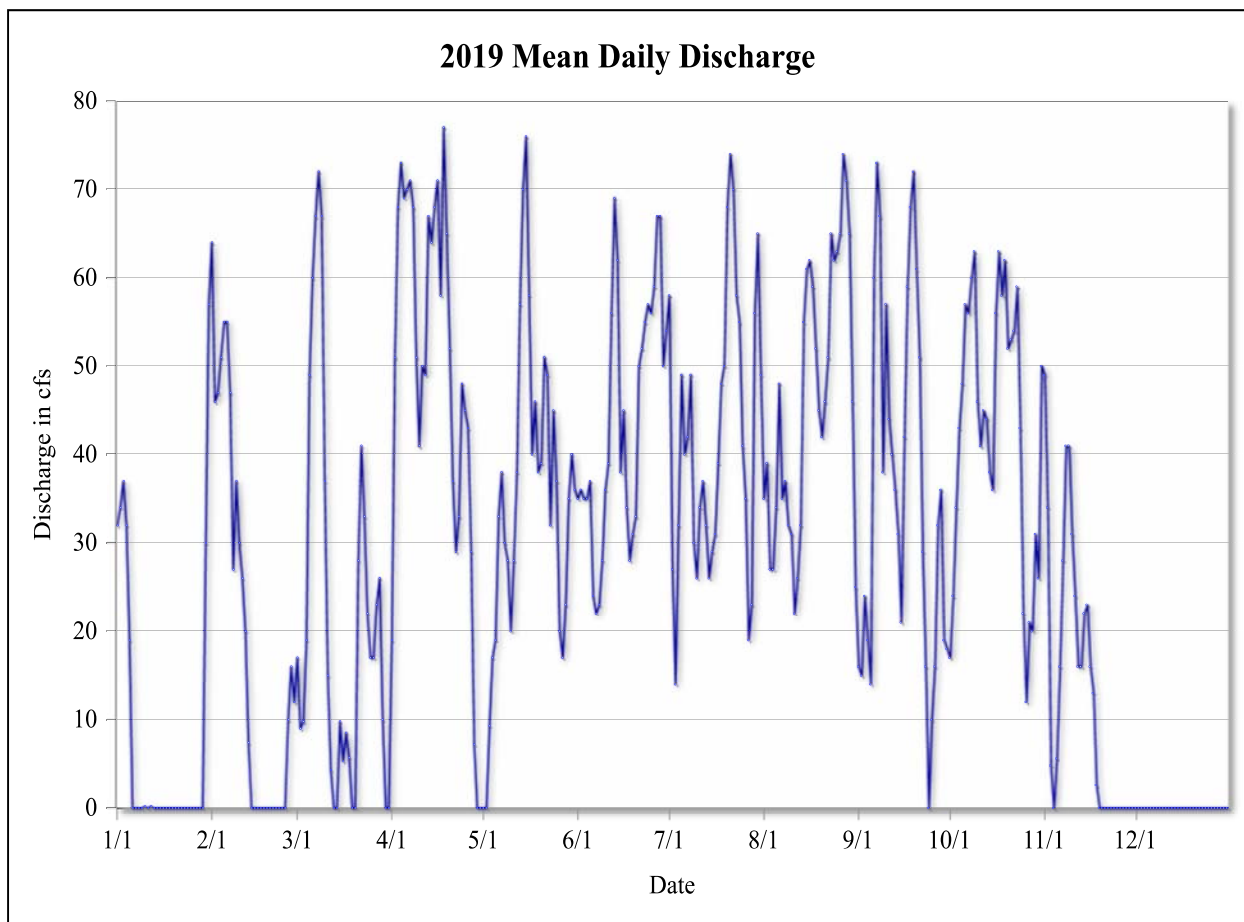
Drainage Area—Not applicable.

Period of Record—July 12, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water stage and velocity measured by a SonTek/YSI Argonaut-SW current meter. Discharge is calculated using a velocity-index relationship.

Extremes—Maximum daily discharge, 104 cfs, May 23, 2017; minimum daily discharge, no diversion at times; maximum hourly discharge, 117 cfs, May 23, 2017 at 02:00; minimum hourly discharge, no diversion at times.

Remarks—None.



Fort Mojave Tribe-Willow

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	32	64	17	19	0	35	58	35	16	17	49	0
2	34	46	9.0	51	0	36	27	39	15	24	34	0
3	37	47	9.8	68	9.3	35	14	27	24	34	4.8	0
4	32	51	19	73	17	35	32	27	19	43	0	0
5	19	55	49	69	19	37	49	34	14	48	5.6	0
6	0	55	60	70	33	24	40	48	60	57	16	0
7	0	47	67	71	38	22	42	35	73	56	28	0
8	0	27	72	68	30	23	49	37	67	60	41	0
9	0	37	67	51	28	28	30	32	38	63	41	0
10	0.18	30	37	41	20	36	26	31	57	46	31	0
11	0	26	15	50	28	39	34	22	44	41	24	0
12	0.20	20	4.3	49	38	56	37	26	40	45	16	0
13	0	7.4	0	67	57	69	32	32	36	44	16	0
14	0	0	0	64	70	62	26	55	31	38	22	0
15	0	0	9.8	68	76	38	29	61	21	36	23	0
16	0	0	5.3	71	58	45	31	62	42	56	16	0
17	0	0	8.5	58	40	34	39	59	59	63	13	0
18	0	0	5.7	77	46	28	48	52	68	58	2.6	0
19	0	0	0	65	38	31	50	45	72	62	0	0
20	0	0	0	52	39	33	68	42	61	52	0	0
21	0	0	28	37	51	50	74	46	51	53	0	0
22	0	0	41	29	49	52	70	51	29	54	0	0
23	0	0	33	33	32	55	58	65	16	59	0	0
24	0	0	22	48	45	57	55	62	0	43	0	0
25	0	0	17	45	37	56	41	63	10	22	0	0
26	0	10	17	43	20	59	35	65	16	12	0	0
27	0	16	23	29	17	67	19	74	32	21	0	0
28	0	12	26	7.2	23	67	23	71	36	20	0	0
29	0		10	0	35	50	56	65	19	31	0	0
30	30		0	0	40	54	65	46	18	26	0	0
31	57		0		36		49	25		50		0
Total	241.42	552.2	672.6	1,472.2	1,066.7	1,310	1,310	1,435	1,084	1,335	381.7	0
Mean	7.79	19.7	21.7	49.1	34.4	43.7	42.3	46.3	36.1	43.1	12.7	0
Max	57	64	72	77	76	69	74	74	73	63	49	0
Min	0	0	0	0	0	22	14	22	0	12	0	0
Ac-ft	479	1,095	1,334	2,920	2,116	2,599	2,599	2,845	2,150	2,647	757	0

Calendar Year Summary

Annual Total 10,861.02 Annual Mean 29.8 Daily Max 77 Daily Min 0 Annual Ac-ft 21,543

Maximum Discharge

Date	Time	GH	Discharge
Apr. 18	21:00	4.28	109

Minimum Discharge

Date	Time	GH	Discharge
Jan. 5	22:00	0.00	0

Fort Mojave Tribe-Barrackman

Location—Latitude 34° 50.931', longitude -114° 35.892', in the NE¼ NE¼ of Section 22, T. 17 N., R. 22 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, river mi 245.4, 1.0 mi east of Needles, California, 18.4 mi south of Bullhead City, Arizona, and 30.5 river mi downstream of Davis Dam.

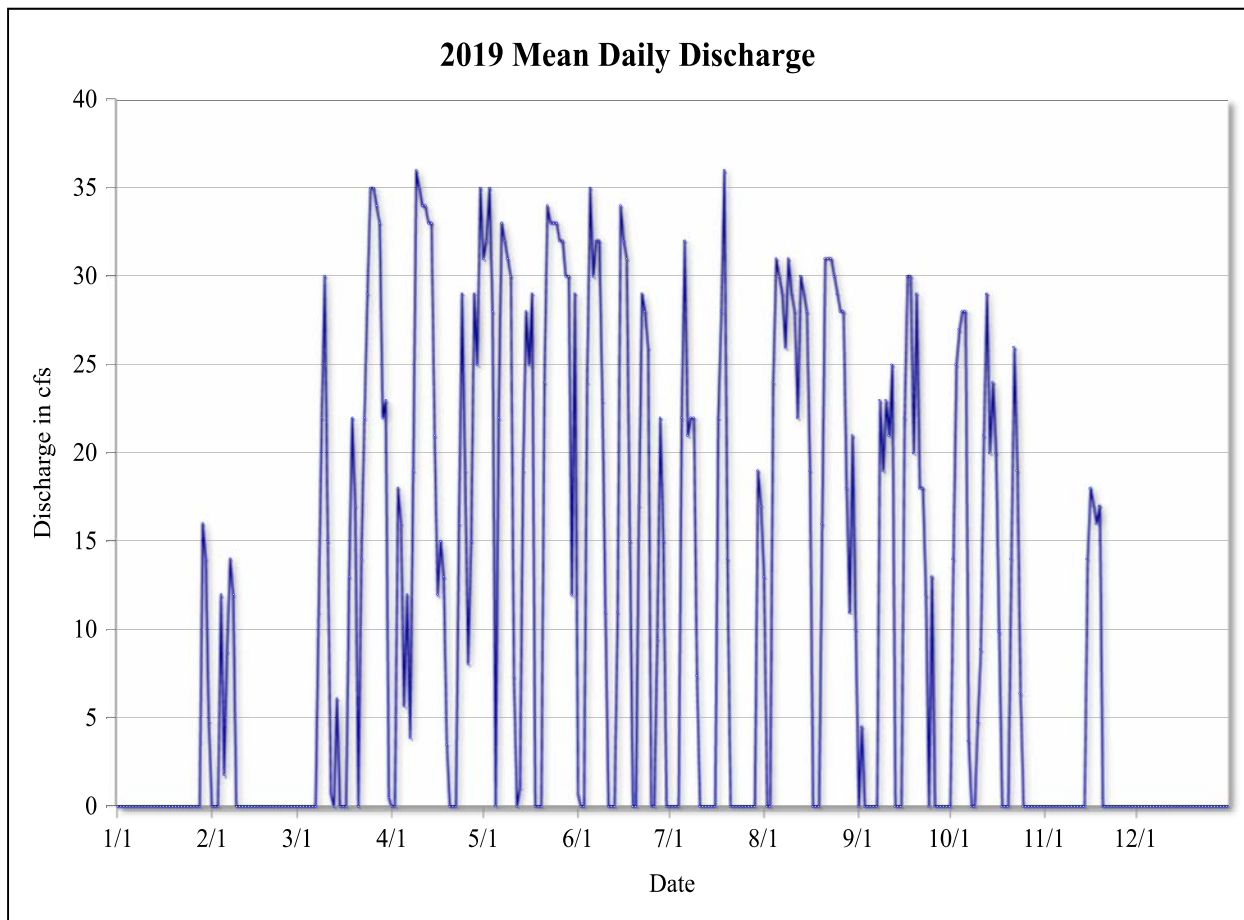
Drainage Area—Not applicable.

Period of Record—April 21, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water stage measured with a Sutron multiple interface shaft encoder (Model 56-0540-400-DTR) upstream from a fixed abrupt-expansion type, long-throated flume. Discharge is calculated using a stage-discharge relationship.

Extremes—Maximum daily discharge, 41 cfs, Jun. 15, 2017; minimum daily discharge, no diversion at times; maximum hourly discharge, 47 cfs, May 9, 2006 at 12:00; minimum hourly discharge, no diversion at times.

Remarks—None.



Fort Mojave Tribe-Barrackman

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	0	0	0	31	0.72	0	13	0	0	0	0
2	0	0	0	0	32	0	0	0	4.5	14	0	0
3	0	0	0	18	35	0	0	0	0	25	0	0
4	0	12	0	16	28	24	0	24	0	27	0	0
5	0	1.8	0	5.7	0.02	35	22	31	0	28	0	0
6	0	8.8	0	12	22	30	32	30	0	28	0	0
7	0	14	0	3.9	33	32	21	29	0	3.7	0	0
8	0	12	11	19	32	32	22	26	23	0	0	0
9	0	0	22	36	31	23	22	31	19	0	0	0
10	0	0	30	35	30	11	7.4	29	23	4.8	0	0
11	0	0	15	34	7.4	0	0	28	21	8.9	0	0
12	0	0	0.76	34	0	0	0	22	25	21	0	0
13	0	0	0	33	1.1	0	0	30	0	29	0	0
14	0	0	6.1	33	19	11	0	29	0	20	0	0
15	0	0	0	21	28	34	0	28	0	24	14	0
16	0	0	0	12	25	32	0	19	22	20	18	0
17	0	0	0	15	29	31	22	0	30	9.9	17	0
18	0	0	13	13	0	15	28	0	30	0	16	0
19	0	0	22	3.5	0	0	36	0	20	0	17	0
20	0	0	17	0	0	0	14	16	29	0	0	0
21	0	0	0	0	24	17	0	31	18	14	0	0
22	0	0	14	0	34	29	0	31	18	26	0	0
23	0	0	22	16	33	28	0	31	12	19	0	0
24	0	0	29	29	33	26	0	30	0	6.4	0	0
25	0	0	35	19	33	0.01	0	29	13	0	0	0
26	0	0	35	8.1	32	0	0	28	0	0	0	0
27	0	0	34	15	32	9.5	0	28	0	0	0	0
28	0	0	33	29	30	22	0	18	0	0	0	0
29	16		22	25	30	15	0	11	0	0	0	0
30	14		23	35	12	0	19	21	0	0	0	0
31	4.8		0.51		29		17	10		0		0
Total	34.5	48.0	382.81	518.5	704.28	456.02	262.5	653	306.7	329.6	83	0
Mean	1.11	1.72	12.3	17.3	22.7	15.2	8.47	21.1	10.2	10.6	2.78	0
Max	16	14	35	36	35	35	36	31	30	29	18	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	68	95	759	1,028	1,397	905	521	1,296	608	654	165	0

Calendar Year Summary

Annual Total 3,779.81 Annual Mean 10.4 Daily Max 36 Daily Min 0 Annual Ac-ft 7,497

Maximum Discharge

Date	Time	GH	Discharge
Jul. 20	01:00	0.85	39

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	0.00	0

Fort Mojave Tribe-Refuge (Fort Mojave Tribe)

Location—Latitude 34° 50.286', longitude -114° 34.237', in the SW¼ SE¼ of Section 24, T. 17 N., R. 22 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, 19.2 mi south of Bullhead City, Arizona, 2.9 mi east of Needles, California, and 31.5 river mi downstream of Davis Dam.

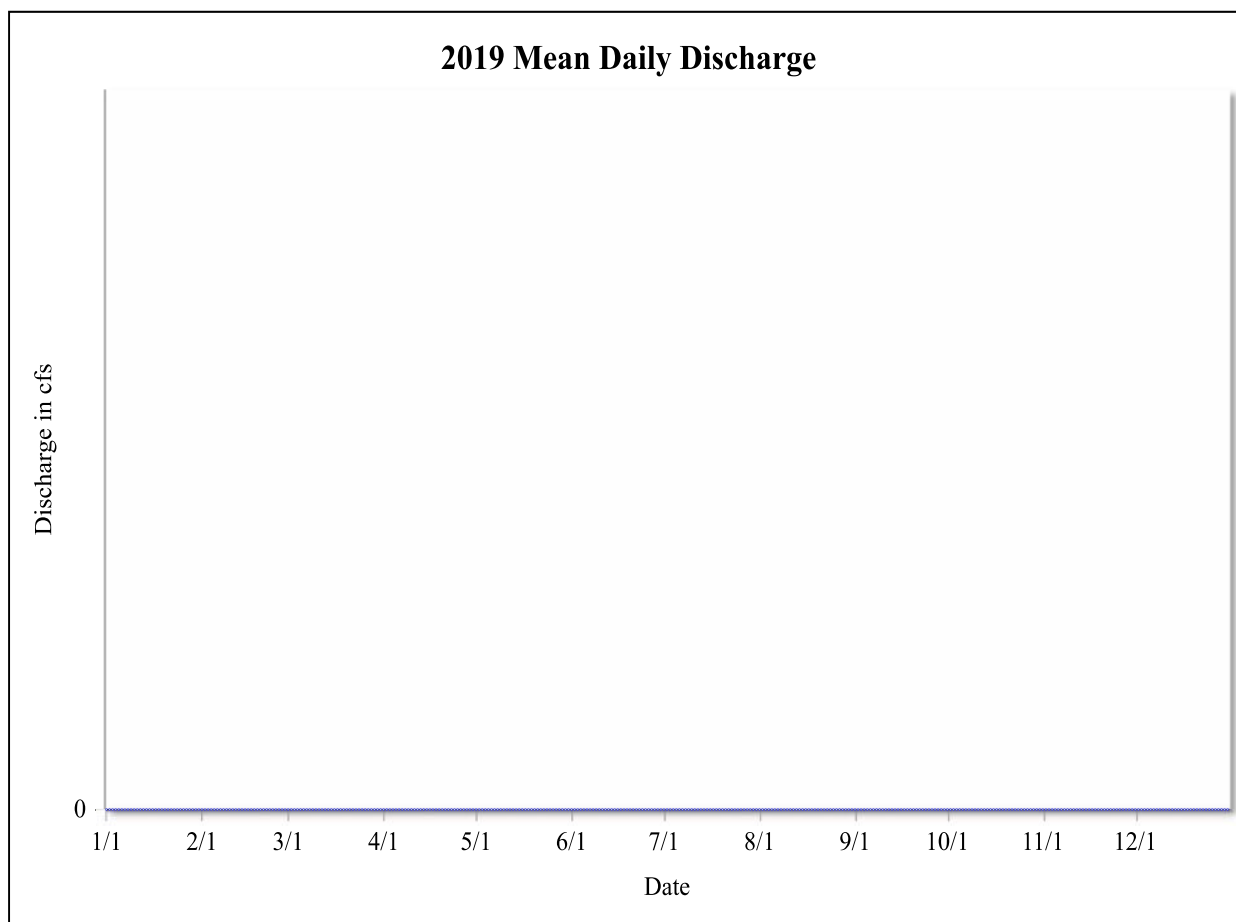
Drainage Area—Not applicable.

Period of Record—January 27, 2006 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records discharge measured with a SeaMetrics insertion magnetic flow meter (Model EX-201-S) mounted in the discharge side of the diversion pipe. Discharge is calculated using a discharge-index relationship.

Extremes—Maximum daily discharge, 20 cfs, Apr. 26, 2008; minimum daily discharge, no diversion at times; maximum hourly discharge, 27 cfs, Jul. 21, 2006 at 14:00; minimum hourly discharge, no diversion at times.

Remarks—The diversion pump was not operated this record period.



Fort Mojave Tribe Refuge (Fort Mojave Tribe)

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0		0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Mean	0	0	0	0	0	0	0	0	0	0	0	0
Max	0	0	0	0	0	0	0	0	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	0	0	0	0	0	0	0	0	0	0

Calendar Year Summary

Annual Total 0 Annual Mean 0 Daily Max 0 Daily Min 0 Annual Ac-ft 0

Maximum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	N/A	0

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	N/A	0

Fort Mojave Tribe-Refuge (Vanderslice Farms)

Location—Latitude 34° 50.286', longitude -114° 34.237', in the SW¼ SE¼ of Section 24, T. 17 N., R. 22 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, 19.2 mi south of Bullhead City, Arizona, 2.9 mi east of Needles, California, and 31.5 river mi downstream of Davis Dam.

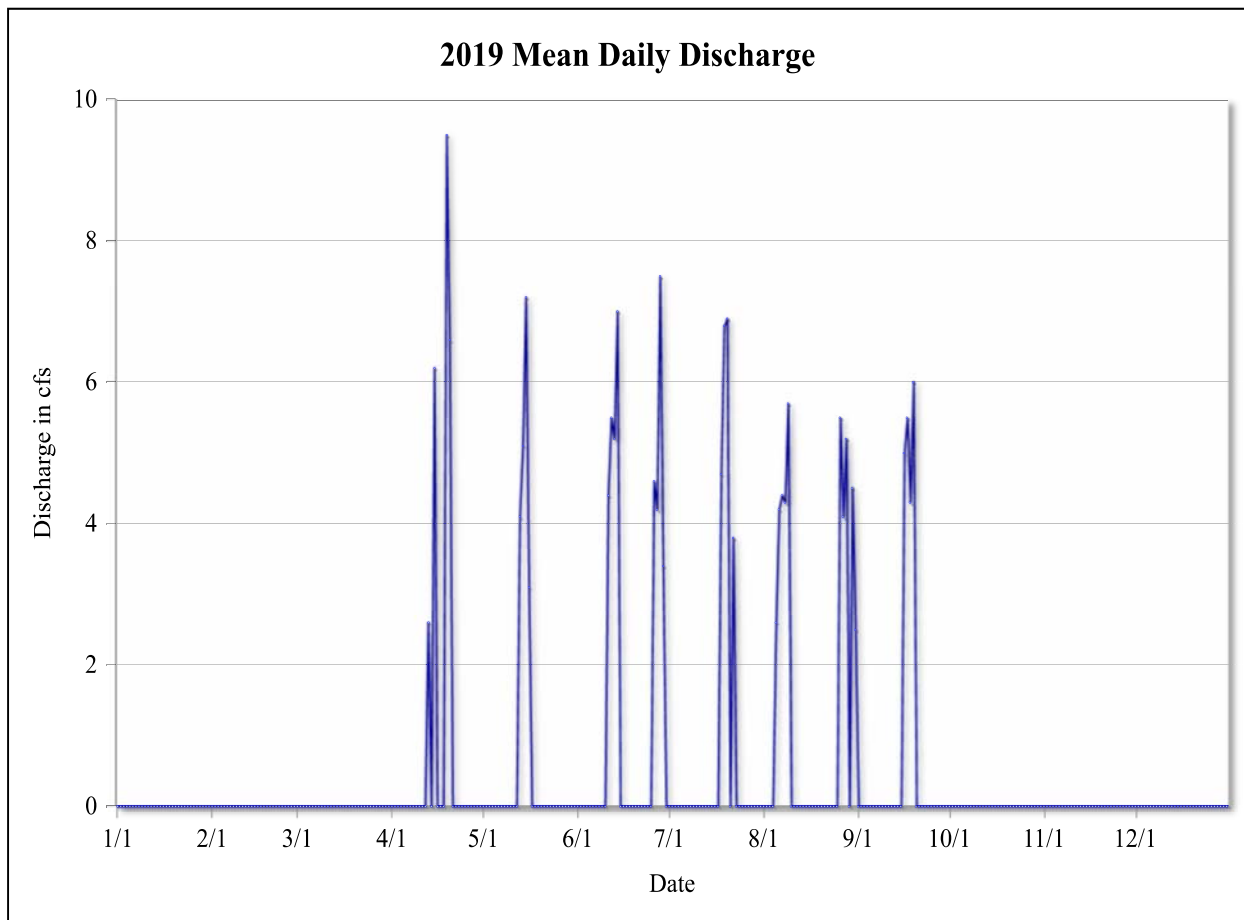
Drainage Area—Not applicable.

Period of Record—January 27, 2006 to current year.

Gage—Sutron Xlite datalogger (Model 9210-0000-2B) records discharge measured with a SeaMetrics insertion magnetic flow meter (Model EX-201-S) mounted in the discharge side of the diversion pipe. Discharge is calculated using a discharge-index relationship.

Extremes—Maximum daily discharge, 16 cfs, Aug. 16, 2006; minimum daily discharge, no diversion at times; maximum hourly discharge, 18 cfs, Aug. 2, 2006 at 11:00; minimum hourly discharge, no diversion at times.

Remarks—None.



Fort Mojave Tribe-Refuge (Vanderslice Farms)

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	2.6	0	0	0	0
6	0	0	0	0	0	0	0	4.2	0	0	0	0
7	0	0	0	0	0	0	0	4.4	0	0	0	0
8	0	0	0	0	0	0	0	4.3	0	0	0	0
9	0	0	0	0	0	0	0	5.7	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	4.4	0	0	0	0	0	0
12	0	0	0	0	0	5.5	0	0	0	0	0	0
13	0	0	0	2.6	4.1	5.2	0	0	0	0	0	0
14	0	0	0	0	5.1	7.0	0	0	0	0	0	0
15	0	0	0	6.2	7.2	0	0	0	0	0	0	0
16	0	0	0	0	3.1	0	0	0	5.0	0	0	0
17	0	0	0	0	0	0	0	0	5.5	0	0	0
18	0	0	0	0	0	0	4.7	0	4.3	0	0	0
19	0	0	0	9.5	0	0	6.8	0	6.0	0	0	0
20	0	0	0	6.6	0	0	6.9	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	3.8	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	4.6	0	5.5	0	0	0	0
27	0	0	0	0	0	4.2	0	4.1	0	0	0	0
28	0	0	0	0	0	7.5	0	5.2	0	0	0	0
29	0		0	0	0	3.4	0	0	0	0	0	0
30	0		0	0	0	0	0	4.5	0	0	0	0
31	0		0		0		0	2.5		0		0
Total	0	0	0	24.8	19.6	41.8	22.2	43.0	20.8	0	0	0
Mean	0	0	0	0.83	0.63	1.39	0.72	1.39	0.69	0	0	0
Max	0	0	0	9.5	7.2	7.5	6.9	5.7	6.0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	0	49	39	83	44	85	41	0	0	0

Calendar Year Summary

Annual Total 172.3 Annual Mean 0.47 Daily Max 9.5 Daily Min 0 Annual Ac-ft 342

Maximum Discharge

Date	Time	GH	Discharge
Jun. 11	13:00	N/A	16

Minimum Discharge

Date	Time	GH	Discharge
Jan. 1	01:00	N/A	0

United States Fish and Wildlife Service-Farm Ditch

Location—Latitude 34° 47.711', longitude -114° 33.275', in the SE¼ SE¼ of Section 1, T. 16 N., R. 22 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, 22.2 mi south of Bullhead City, Arizona, and 4.5 mi southeast of Needles, California.

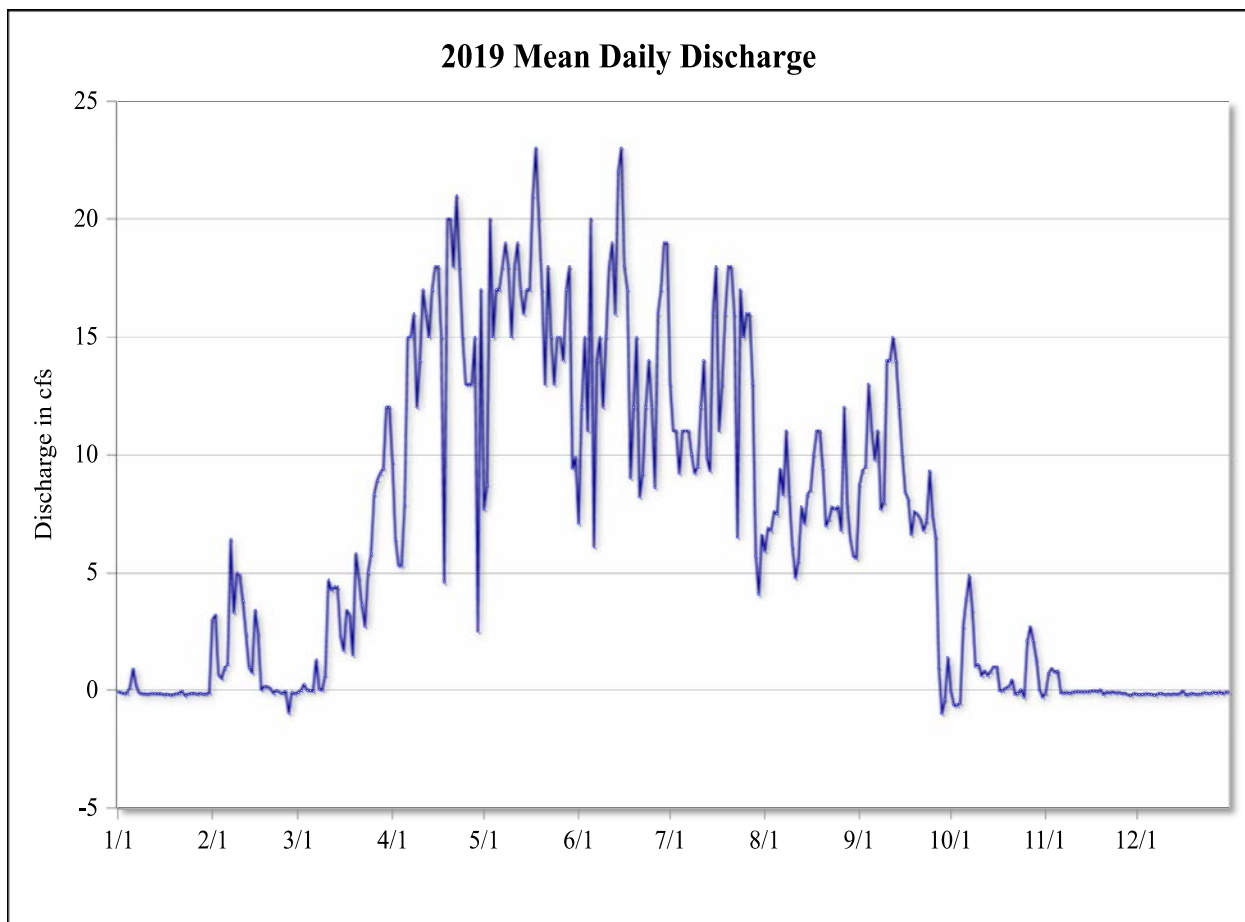
Drainage Area—Not applicable.

Period of Record—January 1, 2005 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water velocity measured with a SonTek/YSI Argonaut-SW current meter. Discharge is calculated using a velocity-index relationship.

Extremes—Maximum daily discharge, 42 cfs, Mar. 14, 2015; minimum daily discharge, -4.1 cfs, May 19, 2017; maximum hourly discharge, 47 cfs, Mar. 15, 2015 at 15:00; minimum hourly discharge, -9.2 cfs, May 2, 2012 at 18:00.

Remarks—The discharge record was estimated from Mar. 21, 2019 at 23:00 to Mar. 22, 2019 at 10:00, Mar. 24, 2019 at 03:00 to Mar. 25, 2019 at 07:00, and Mar. 28, 2019 at 00:00 to Mar. 29, 2019 at 12:00 due to equipment failure.



United States Fish and Wildlife Service-Farm Ditch

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	-0.07	3.0	-0.10	9.7	7.7	7.1	13	5.9	8.7	-0.08	-0.14	-0.19
2	-0.11	3.2	-0.02	6.4	8.7	12	11	6.9	9.3	-0.63	0.71	-0.19
3	-0.15	0.64	0.24	5.3	20	15	11	6.8	9.5	-0.62	0.91	-0.18
4	-0.13	0.48	-0.01	5.3	15	11	9.2	7.6	13	-0.53	0.75	-0.16
5	0.12	0.91	-0.02	7.9	17	20	11	7.5	11	2.7	0.80	-0.17
6	0.89	1.1	-0.05	15	17	6.1	11	9.4	9.8	3.9	-0.12	-0.19
7	0.19	6.4	1.3	15	18	14	11	8.3	11	4.9	-0.12	-0.22
8	-0.13	3.3	0.03	16	19	15	10	11	7.7	3.4	-0.11	-0.15
9	-0.17	5.0	0.01	12	18	12	9.2	8.3	8.0	1.0	-0.14	-0.14
10	-0.17	4.9	0.63	14	15	15	9.5	6.1	14	1.1	-0.09	-0.20
11	-0.18	3.8	4.7	17	18	18	12	4.8	14	0.61	-0.07	-0.17
12	-0.15	2.4	4.3	16	19	19	14	5.5	15	0.81	-0.07	-0.19
13	-0.15	0.96	4.4	15	17	16	9.9	7.8	14	0.62	-0.08	-0.16
14	-0.16	0.73	4.4	17	16	22	9.3	7.1	12	0.78	-0.07	-0.18
15	-0.15	3.4	2.3	18	17	23	16	8.3	10	1.0	-0.08	-0.16
16	-0.20	2.4	1.7	18	17	18	18	8.5	8.4	1.0	-0.04	-0.03
17	-0.17	0	3.4	15	21	17	11	10	8.1	-0.03	-0.03	-0.21
18	-0.21	0.15	3.2	4.6	23	9.0	13	11	6.6	-0.02	-0.07	-0.18
19	-0.20	0.14	1.5	20	20	12	16	11	7.6	0.09	0.01	-0.14
20	-0.16	0.06	5.8	20	17	15	18	9.4	7.5	0.14	-0.19	-0.18
21	-0.15	-0.14	4.8	18	13	8.2	18	7.0	7.3	0.43	-0.09	-0.18
22	-0.04	-0.01	3.6	21	18	9.2	16	7.3	6.8	-0.18	-0.12	-0.17
23	-0.24	-0.10	2.7	18	15	12	6.5	7.8	7.2	-0.14	-0.08	-0.11
24	-0.17	-0.15	5.0	15	13	14	17	7.7	9.3	0.02	-0.13	-0.14
25	-0.14	-0.05	5.8	13	15	12	15	7.8	7.4	-0.31	-0.10	-0.15
26	-0.14	-0.95	8.3	13	15	8.6	16	6.8	6.5	2.1	-0.15	-0.09
27	-0.18	-0.10	8.9	13	14	16	16	12	0.94	2.7	-0.13	-0.14
28	-0.14	-0.16	9.2	15	17	17	13	7.9	-0.98	2.1	-0.21	-0.08
29	-0.18		9.4	2.5	18	19	5.7	6.4	-0.39	1.3	-0.23	-0.15
30	-0.17		12	17	9.4	19	4.1	5.7	1.4	0.01	-0.14	-0.10
31	-0.12		12		9.9		6.6	5.6		-0.30		-0.08
Total	-3.13	41.39	119.77	410.3	496.9	431.4	378.3	243.3	251.97	27.91	0.38	-4.76
Mean	-0.10	1.48	3.86	13.7	16.0	14.4	12.2	7.85	8.40	0.90	0.013	-0.15
Max	0.89	6.4	12	21	23	23	18	12	15	4.9	0.91	-0.03
Min	-0.24	-0.95	-0.10	2.5	7.7	6.1	4.1	4.8	-0.98	-0.63	-0.23	-0.22
Ac-ft	-6.2	82	238	814	986	856	750	483	500	55	0.7	-9.4

Calendar Year Summary

Annual Total 2,393.63 Annual Mean 6.56 Daily Max 23 Daily Min -0.98 Annual Ac-ft 4,748

Maximum Discharge

Date	Time	GH	Discharge
Jun. 29	05:00	N/A	33

Minimum Discharge

Date	Time	GH	Discharge
Feb. 26	07:00	N/A	-4.4

Bold values indicate the daily value was derived from hourly data that contained 6 or more consecutive hours of estimated record.

United States Fish and Wildlife Service-South Dike

Location—Latitude 34° 44.214', longitude -114° 29.407', in the SW¼ SE¼ of Section 27, T. 16 N., R. 21 W., Gila-Salt River meridian, Mohave County, Arizona, Hydrologic Unit 15030101, 26.8 mi south of Bullhead City, Arizona, and 9.9 mi southeast of Needles, California.

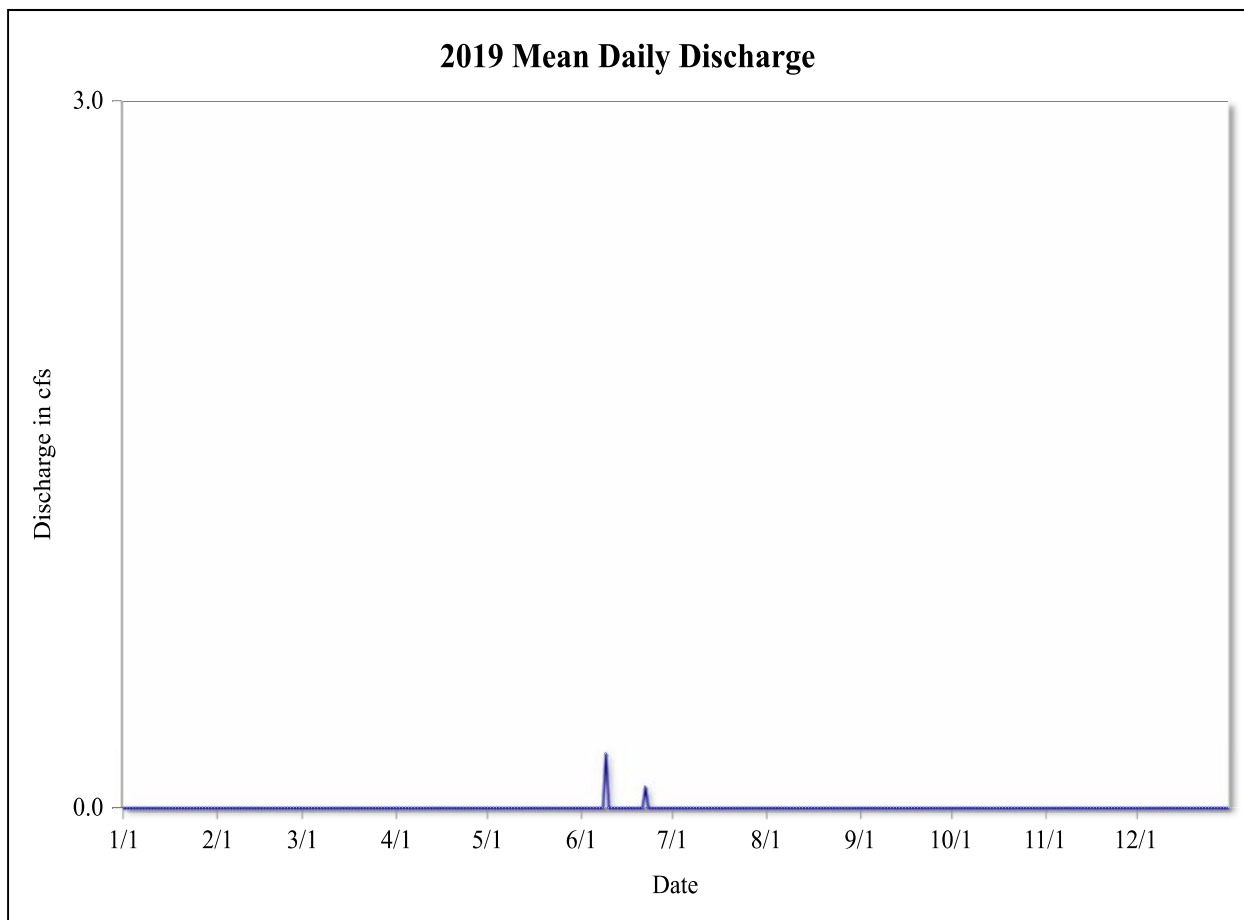
Drainage Area—Undetermined.

Period of Record—June 16, 2005 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records river and gate elevation measured with Sutron multiple interface shaft encoders (Model 56-0540-400-DTR) and marsh with Sutron SDI-12 submersible pressure sensor (Model 56-114). Discharge over the bi-fold lateral gate is computed by applying two theoretical and two empirical weir equations. Four flow conditions exist; forward free flow, forward submerged, reverse free flow, and reverse submerged. Forward free flow uses the manufacturers equation. Reverse submerged flow was developed with 13 discharge measurements. Forward submerged and reverse free flow are purely theoretical. The transitions between equations do not appear smooth and therefore the data should be considered poor.

Extremes—Maximum daily discharge, 9.1 cfs on Aug. 5, 2005; minimum daily discharge, -88 cfs on Apr. 8, 2011; maximum hourly discharge, 39 cfs on Apr. 27, 2011 at 18:00; minimum hourly discharge, -92 cfs on Apr. 7, 2011 at 23:00.

Remarks—The discharge record was estimated from Sep. 26, 2019 at 14:00 to Oct. 16, 2019 at 10:00 and Nov. 27, 2019 at 06:00 to Dec. 9, 2019 at 13:00 due to equipment failure.



United States Fish and Wildlife Service-South Dike

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0.23	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0.09	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0		0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Total	0	0	0	0	0	0.31	0	0	0	0	0	0
Mean	0	0	0	0	0	0.010	0	0	0	0	0	0
Max	0	0	0	0	0	0.23	0	0	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	0	0	0	0.6	0	0	0	0	0	0

Calendar Year Summary

Annual Total 0.31 Annual Mean 0.001 Daily Max 0.23 Daily Min 0 Annual Ac-ft 0.6

Maximum Discharge

Date	Time	Elev	Discharge
Jun. 9	11:00	455.79	0.89

Minimum Discharge

Date	Time	Elev	Discharge
Jan. 1	01:00	454.08	0

Bold values indicate the daily value was derived from hourly data that contained 6 or more consecutive hours of estimated record.

Palo Verde Irrigation District-Main Canal

Location—Latitude 33° 43.801', longitude -114° 30.717', in the SW¼ NE¼ of Section 19, T. 5 S., R. 24 E., San Bernardino meridian, Riverside County, California, Hydrologic Unit 15030104, river mi 133.8, 31.7 mi south of Parker, Arizona, 9.2 mi north of Blythe, California, and 58.2 river mi downstream of Parker Dam.

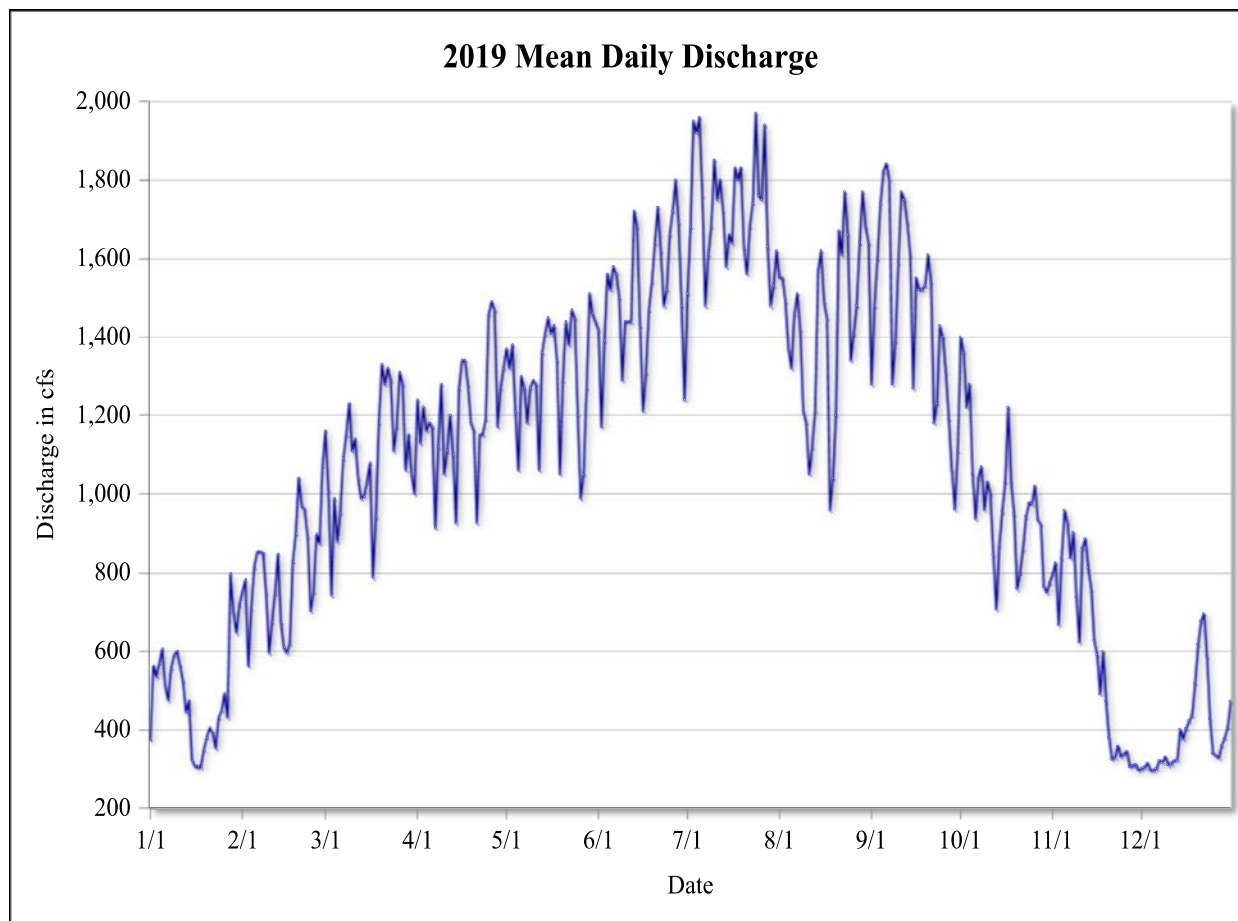
Drainage Area—Not applicable.

Period of Record—January 1, 2005 to January 1, 2020.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation and velocity measured with a SonTek/YSI Argonaut-SL current meter. Discharge is calculated using a velocity-index relationship.

Extremes—Maximum daily discharge, 2,240 cfs, Jun. 27, 2013; minimum daily discharge, -89 cfs, Jan. 2, 2016; maximum hourly discharge, 2,722 cfs, Jul. 5, 2019 at 14:00; minimum hourly discharge, -1,040 cfs, Jan. 2, 2015 at 10:00.

Remarks—Palo Verde Irrigation District did not have an outage in 2019. Gage heights from Mar. 25, 2019 at 16:00 until Mar. 27, 2019 at 10:00 are calculated from pressure data as the stage data was affected by vegetation over the sensor. This is the final record period for this gage and the site will be decommissioned.



Palo Verde Irrigation District Main Canal

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	373	753	1,160	1,240	1,370	1,420	1,510	1,550	1,280	1,400	798	301
2	562	783	1,010	1,130	1,320	1,170	1,680	1,550	1,480	1,360	825	304
3	534	561	744	1,220	1,380	1,390	1,950	1,490	1,600	1,220	667	314
4	568	707	988	1,160	1,210	1,560	1,920	1,370	1,740	1,280	836	297
5	606	814	879	1,180	1,060	1,520	1,960	1,320	1,820	1,050	959	297
6	509	852	953	1,170	1,300	1,580	1,760	1,460	1,840	938	927	301
7	475	852	1,090	915	1,270	1,560	1,480	1,510	1,800	1,040	837	321
8	555	849	1,150	1,120	1,180	1,500	1,610	1,420	1,280	1,070	903	316
9	591	748	1,230	1,280	1,270	1,290	1,680	1,210	1,390	961	737	330
10	600	596	1,110	1,050	1,290	1,440	1,850	1,180	1,590	1,030	623	310
11	562	674	1,140	1,110	1,280	1,440	1,750	1,050	1,770	1,000	862	313
12	521	750	1,040	1,200	1,060	1,440	1,800	1,120	1,750	845	886	320
13	445	847	988	1,100	1,360	1,720	1,720	1,210	1,690	707	812	322
14	473	673	994	927	1,410	1,680	1,580	1,570	1,610	868	760	401
15	322	609	1,030	1,270	1,450	1,430	1,660	1,620	1,270	957	627	375
16	307	596	1,080	1,340	1,410	1,210	1,640	1,490	1,550	1,030	591	403
17	305	620	789	1,340	1,430	1,310	1,830	1,450	1,520	1,220	490	423
18	305	828	943	1,280	1,340	1,470	1,800	960	1,520	1,030	599	436
19	348	899	1,180	1,180	1,050	1,540	1,830	1,040	1,530	950	472	517
20	379	1,040	1,330	1,160	1,290	1,640	1,630	1,200	1,610	760	379	617
21	405	970	1,280	928	1,440	1,730	1,560	1,670	1,540	801	324	676
22	391	961	1,320	1,150	1,380	1,620	1,680	1,610	1,180	859	328	695
23	352	891	1,290	1,150	1,470	1,480	1,740	1,770	1,230	943	358	586
24	431	702	1,110	1,190	1,450	1,520	1,970	1,660	1,430	977	331	428
25	449	753	1,170	1,460	1,200	1,660	1,760	1,340	1,400	975	336	339
26	491	899	1,310	1,490	988	1,720	1,750	1,410	1,310	1,020	344	333
27	432	874	1,280	1,470	1,050	1,800	1,940	1,480	1,190	935	306	327
28	798	1,070	1,060	1,170	1,270	1,690	1,630	1,640	1,060	924	308	359
29	697		1,150	1,270	1,510	1,480	1,480	1,770	962	766	311	378
30	647		1,050	1,320	1,460	1,240	1,530	1,680	1,110	751	297	407
31	717		1,000		1,440		1,620	1,640		775		472
Total	15,151	22,166	33,843	35,978	40,406	45,253	53,286	44,441	44,037	30,434	17,835	12,220
Mean	489	792	1,092	1,199	1,303	1,508	1,719	1,434	1,468	982	595	394
Max	798	1,070	1,330	1,490	1,510	1,800	1,970	1,770	1,840	1,400	959	695
Min	305	561	744	915	988	1,170	1,480	960	962	707	297	297
Ac-ft	30,052	43,967	67,127	71,360	80,143	89,757	105,691	88,147	87,346	60,364	35,376	24,239

Calendar Year Summary

Annual Total 395,050 Annual Mean 1,082 Daily Max 1,970 Daily Min 297 Annual Ac-ft 783,569

Maximum Discharge

Date	Time	Elev	Discharge
Jul. 5	14:00	282.48	2,722

Minimum Discharge

Date	Time	Elev	Discharge
May 6	14:00	281.34	46

Palo Verde Irrigation District-Outfall Drain

Location—Latitude 33° 20.308', longitude -114° 42.734', in the SW¼ NE¼ of Section 1, T. 10 S., R. 21 E., San Bernardino meridian, Imperial County, California, Hydrologic Unit 15030104, 20.2 mi south of Blythe, California, and 44.4 mi north of Yuma, Arizona.

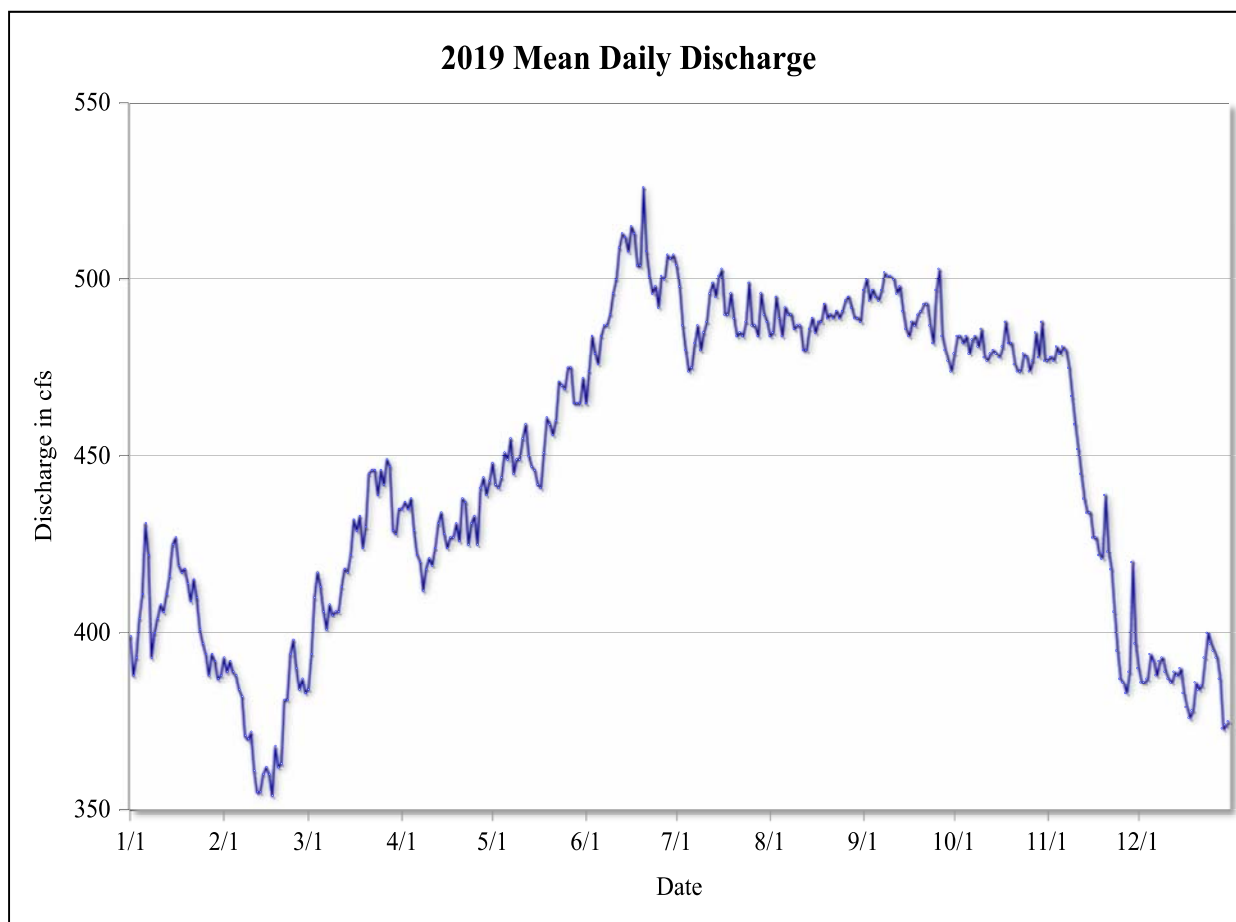
Drainage Area—Undetermined.

Period of Record—January 1, 2005 to current year.

Gage—A Sutron Xlite datalogger (Model 9210-0000-2B) records water elevation and velocity measured with a SonTek/YSI Argonaut-SL current meter. Discharge is calculated using a velocity-index relationship.

Extremes—Maximum daily discharge, 1,200 cfs, Aug. 10, 2005; minimum daily discharge, 299 cfs, Jan. 10, 2017; maximum hourly discharge, 3,230 cfs (estimated), Aug. 9, 2005 at 23:00, caused by an overbank condition created from significant side wash inflow; minimum hourly discharge, 225 cfs, Nov. 29, 2006 at 15:00.

Remarks—During the fall months uncertainty is increased due to excessive aquatic growth.



Palo Verde Irrigation District-Outfall Drain

Mean daily discharge, in cubic-feet per second, Calendar Year 2019

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	399	393	384	435	448	465	504	484	497	479	477	390
2	388	389	394	437	442	474	498	485	500	484	478	386
3	393	392	410	435	441	484	487	495	494	484	477	386
4	404	389	417	438	444	479	480	489	497	482	481	387
5	411	388	413	429	451	476	474	484	495	484	479	394
6	431	384	406	422	449	484	475	492	494	479	481	392
7	422	382	401	420	455	487	482	490	497	483	480	388
8	393	371	408	412	445	487	487	490	502	484	475	392
9	400	370	405	418	449	490	480	486	501	481	467	393
10	404	372	406	421	449	496	485	487	501	486	459	389
11	408	361	406	419	455	500	488	487	500	478	452	387
12	406	355	413	424	459	509	496	480	496	477	445	386
13	411	355	418	431	450	513	499	480	498	479	438	389
14	416	360	417	434	447	512	495	486	491	480	434	388
15	425	362	422	428	446	508	501	489	486	479	434	390
16	427	360	432	424	442	515	503	485	484	478	427	383
17	419	354	429	427	441	513	490	488	488	481	427	379
18	417	368	433	427	451	504	490	488	487	488	422	376
19	418	362	424	431	461	504	496	493	490	482	421	378
20	414	363	430	426	459	526	489	489	491	482	439	386
21	409	381	445	438	456	508	484	490	493	476	423	384
22	415	381	446	437	460	501	485	489	493	474	418	385
23	410	394	446	425	471	496	484	491	487	474	406	393
24	401	398	439	431	470	498	488	489	482	479	395	400
25	397	390	446	433	469	492	499	491	497	478	387	397
26	394	384	442	425	475	501	487	494	503	474	386	395
27	388	387	449	441	475	500	487	495	484	477	383	393
28	394	383	447	444	465	507	484	492	480	485	389	387
29	392		429	439	465	506	496	489	477	478	420	373
30	387		428	443	465	507	490	489	474	488	397	374
31	388		435		472		488	488		477		375
Total	12,582	10,528	13,121	12,897	14,128	14,944	15,170	15,143	14,759	14,887	13,097	11,995
Mean	406	376	423	430	456	498	489	488	492	480	437	387
Max	431	398	449	444	475	526	504	495	503	488	481	400
Min	387	354	384	412	441	465	474	480	474	474	383	373
Ac-ft	24,956	20,883	26,026	25,581	28,022	29,641	30,089	30,036	29,275	29,528	25,978	23,793

Calendar Year Summary

Annual Total 163,253 Annual Mean 447 Daily Max 526 Daily Min 354 Annual Ac-ft 323,807

Maximum Discharge

Date	Time	Elev	Discharge
Sep. 25	21:00	217.78	559

Minimum Discharge

Date	Time	Elev	Discharge
Feb. 17	11:00	214.54	348

Glossary

Acre-foot (ac-ft)—The quantity of water required to cover one acre to a depth of one foot, the equivalent of 43,560 cubic feet or about 326,000 gallons.

Control—Channel features downstream of a gage which determine the stage-discharge relation at the gage. Controls can be either artificial or natural. Artificial controls consist of man-made structures like weirs and flumes, while natural controls consist of channel constrictions, outcroppings, rock or gravel beds, and uniform stretches of channel.

Cubic Feet per Second (cfs)—The rate of discharge representing a volume of one cubic foot passing a given point during one second, the equivalent of approximately 7.48 gallons per second or 448.8 gallons per minute.

Data—Characteristic observations, often represented as numbers, made over specific points in time.

Datalogger—An electronic device that records data in time sequence with related events. Dataloggers take measurements from sensors and/or transducers located at a gaging station.

Datum—Any numerical quantity that serves as a reference or base for another comparable quantity.

Discharge—The volume of water that passes a given point within a given period of time.

Discharge-Index Relationship—The relationship between an indicator discharge and a volume of water, per unit of time, flowing in a channel or pipe.

Drainage Area—The area of the associated drainage basin expressed in square miles.

Elevation—The height of water at a gage measured in reference to mean sea level.

Estimated Data or Record—Data that has been estimated to replace missing or erroneous gage data by a method of prediction that includes averaging, interpolation, or correlation.

Extremes—The maximum and minimum hourly and daily discharges recorded in the date range listed in the period of record.

Final Data—Provisional data that have been checked for completeness and accuracy and may have been adjusted and corrected based on observations.

Gage—An instrument or device used to measure a medium's magnitude or position, such as water elevation or velocity.

Gage-Height (gh)—The height of water at a gage with no vertical datum reference applied.

Gaging Station—A particular location in a stream, canal, lake, pipe, or reservoir where systematic observations of hydrologic data are obtained.

Global Positioning System (gps)—A system of orbiting satellites and receiving devices used to compute positions on the earth.

Hydrologic Unit Code (huc)—A geographic area representing part or all of a surface drainage basin or distinct hydrologic feature that is represented as an eight digit number.

Latitude—The angular distance north or south of the earth's equator, measured in degrees along a meridian, as on a map or globe.

Longitude—The angular distance on the earth's surface, measured east or west from the prime meridian at Greenwich, England, to the meridian passing through a position, measured in degrees.

Location—The location of the gaging station with respect to physical features in the vicinity, and with respect to the reference plane mentioned in the station name.

Meridian—Lines measuring the distance east and west around the earth at right angles to the equator. Meridians are great circles of the earth passing through both poles also known as lines of *Longitude*.

Maximum Discharge—The maximum reported hourly or daily discharge for the calendar year.

Minimum Discharge—The minimum reported hourly or daily discharge for the calendar year.

Negative Discharge—The volume of water flowing in the opposite direction of normal flow. A negative discharge is subtracted from discharge and acre-feet totals.

Period of Record—A period for which published records exist for a gaging station.

Provisional Data—Data collected in real-time that have received little or no review. Inaccuracies in data may be present because of instrument malfunctions or physical changes at the measurement location. Significant revisions to the data may result upon review and computation of final data record.

Quarter-quarter—A method used to subdivide *sections*; each section is divided into four quarter sections: southeast, southwest, northeast, and northwest. Each subdivided section is then divided again into four quarter sections giving a total of 16 quadrants per section.

Real-Time Data—Provisional data that have been computed, and made available immediately.

River Mile—The curvilinear distance, in miles, measured upstream from the beginning of the stream along the path of the stream.

Section—A unit of land area, generally equal to one square mile or 640 acres. The section is part of a description of the location of land using the Public Land Survey System (PLSS) of the United States Government.

Sensor—Any device that senses a change in a physical or chemical quantity, and provides an electrical output for measurement by a datalogger.

Stage—The height of water above stream bed or an arbitrary datum.

Stage-Discharge Relationship—The relationship between gage height, and the volume of water, per unit of time, flowing in a channel.

Township—A territorial subdivision, generally considered six miles long, six miles wide, and containing 36 *sections*. The township designation is part of a description of the location of land using the PLSS, and

includes the 40-acre subdivision within a *quarter*, *section*, township, and range. The PLSS is based on the concept of a township as a square parcel of land six miles on each side. Its location is established as being so many six-mile units east of a north-south line (called a meridian), and so many six-mile units north or south of an east-west line (called the baseline). The township is described by township and range (e.g., T. 4 N., R. 23 E.). Each township is further divided into 36 parts called sections, each approximately one mile square in area. A lot consists of an expanse of land of no particular size, often irregular in form.

Transducer—Any device that converts energy from one form to another, as from acoustic energy to electric or mechanical energy.

Velocity-Index—Continuous velocity measurements made from an in-situ velocity sensor that measures a sample volume of a stream. Velocity-Index measurements are required when the channel has poor control or experiences backwater conditions.

Velocity-Index Relationship—The relationship between an index velocity and the mean stream velocity, computed from a discharge measurement, flowing in a channel.

World Geodetic System of 1984 —The World Geodetic System of 1984 is the datum that is used by the GPS. The datum is defined and maintained by the United States National Geospatial-Intelligence Agency.

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Disclaimer

The equipment manufacturer trade names mentioned in this report do not indicate endorsement by the United States Department of the Interior or the Bureau of Reclamation.

Notes